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ABSTRACT

The activities in this guide are designed to provide a framework for instruction on safety and health on the job. The guide consists of three chapters. Chapter one introduces the guide, discusses how to use it, and explains the goals and objectives of the course. The second chapter contains detailed learning activities. Chapter three provides an overview of the field, a review of the Occupational Safety and Health Administration, suggestions for engaging community cooperation, and a list of additional resources. (JD)

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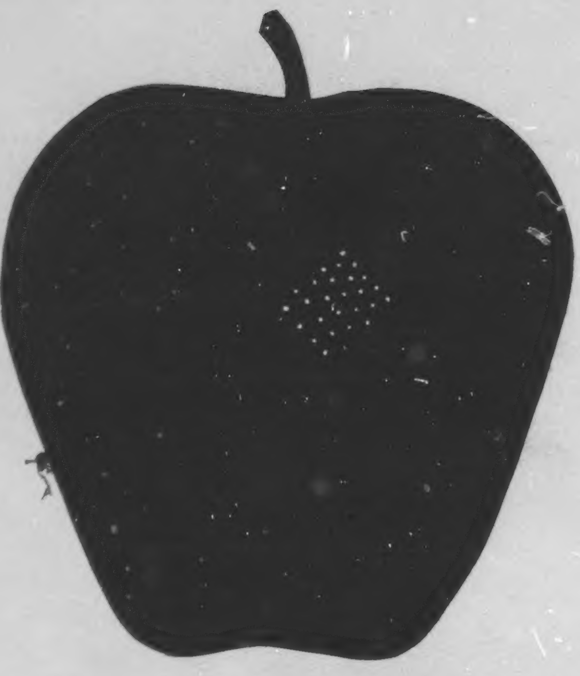

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Instructor Guide

By Peter Finn

Abt Associates Inc.

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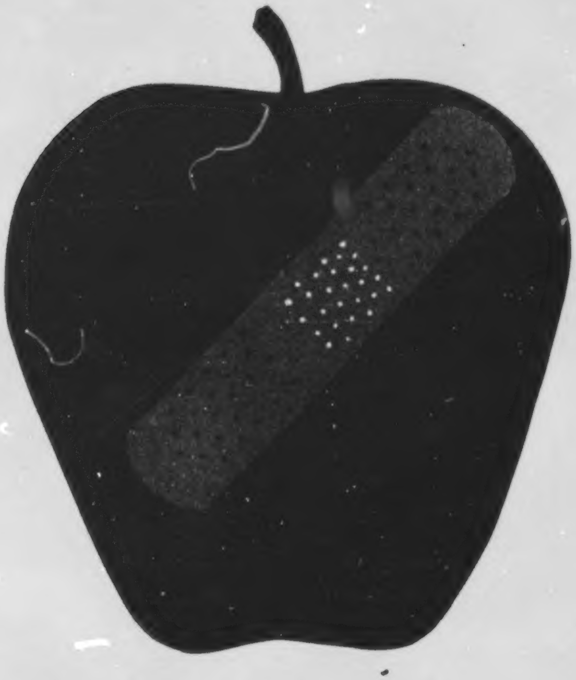

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Introduction

What Is in the OSHEd Guide

The OSHEd Instructor's Guide consists of three chapters:

- Chapter 1 introduces the guide and discusses how to use it, why teach about occupational safety and health, what your goals and objectives should be, and what the learning activities are like.
- Chapter 2 presents 18 detailed learning activities from which you can select those that best meet your needs and your students' needs.
- Chapter 3 provides four aids for teaching about occupational safety and health: (1) an overview of the field; (2) a review of the Occupational Safety and Health Administration (OSHA); (3) suggestions for enlisting the help of the local community; and (4) a list of additional resources.

Several sections of the learning activities (role profiles, stories, questionnaires) have been designed to be used as student handouts. You can duplicate them and also the materials on occupational safety and health in chapter 3.

How to Use the OSHEd Guide

You can introduce a study of occupational safety and health into your courses in at least two ways:

1. You can develop and implement a *separate* unit devoted exclusively to job safety and health. If you choose to do this, select activities from chapter 2 that you would like to use and order them into a logical sequence. Select and arrange the activities so that students engage in a variety of learning approaches and so that initial activities provide the necessary background for student participation in subsequent ones. Use the level of difficulty designations in the upper right-hand corner of each activity to help you identify activities that are most appropriate to the grade and ability level you teach.
2. You can *integrate* one or more activities periodically into your ongoing curriculum where they fit in naturally with a topic you are already treating in your course.

You may want to learn more about occupational safety and health yourself before you begin to teach about it. The first section in chapter 3 provides an overview of the field. You can also read some of the literature recommended in the resources section of that chapter. However, keep in mind that most of the student learning activities require your pupils to unearth information about workplace hazards by themselves; you don't have to become an "expert" who knows all the answers. Your students should begin now to practice and develop skills on their own that they will need later in life for ferreting out and reducing workplace hazards.

Why Teach about Occupational Safety and Health*

The magnitude of safety and health hazards related to the workplace is astonishing:

- In 1976, nearly 50,000 workers were killed in job-related accidents, and over 2.2 million work-related disabling injuries were reported. An estimated 25 million serious job-related injuries and deaths go uncounted each year.
- About 500,000 workers report developing an "official" occupational disease each year.
- Sixty-five percent of all industrial workers are exposed to toxic substances or harmful physical conditions such as excessive noise or vibrations.
- Time lost in 1975 due to work-related accidents amounted to 245 million person days, equivalent to the shutdown of plants with a total of one million workers for an entire year.
- Nearly three out of every ten injuries involving lost workdays have a duration of fifteen days or more away from work.

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*Adapted from Peter Finn, "Occupational Safety and Health Education in the Public Schools: Rationale, Goals, and Implementation," *Preventive Medicine* 7 (1978) pp. 245-259. Reprinted by permission of Academic Press.

We tend to think of workplace illnesses and injuries exclusively in terms of blue collar and industrial occupations, but countless white collar workers are also subject to a variety of hazards on the job. Actors, barbers, hairdressers, dentists, doctors, clerks, and nurses, for example, are all exposed to poisonous substances in their work. "Executive stress" has become a fashionable topic in the popular press. Even office work exposes many of the country's 25 to 30 million clerks and secretaries to ozone and methanol poisoning from office copying machines, glare from fluorescent lights, excessive noise from typewriters, computers, and tabulating machines, back strain and muscle fatigue, hemorrhoids, and stress from boredom and meeting deadlines.

Safety and health hazards on the job can also have serious consequences for *non*workers, as well. The insulation worker who exposes his or her family to cancer by bringing home invisible and indestructible particles of asbestos on clothing and the businessperson who comes home too fatigued or tense from work pressures to devote time to his or her spouse or children are just two examples of occupational health problems that can have adverse consequences for people who may not be currently working at all.

Given the immensity and varied nature of the occupational safety and health problem, there are three cogent reasons youngsters, well before adulthood, need to become familiar with issues related to illness and injury at the workplace.

1. Good attitudes toward safety and health are best established at an early age. By the time people enter the world of work, they have often become fatalistic or callous in their attitudes toward job safety and health. Citizens need to be educated while they are still youngsters to avoid job-related safety and health risks and to pay attention to early warning signals of impaired health.

2. The secondary school years are also the best time to promote occupational safety and health because school children, as unacceptable as the fact may be to some educators and most students, are a captive audience. Educating employees in preventing work-related injuries and illnesses is an unpredictable proposition: it is extremely difficult to access working people for the purpose of educating them to reduce their risk of job-related diseases and accidents. Moreover, industry, government, and organized labor cannot be relied on to protect the worker fully. They do not have the money, time, or, in many cases, incentive to do so. Given these constraints to educating adult workers, we should take advantage of the single occasion in our society when the vast majority of the population can be successfully reached to provide a thorough background in occupational safety and health.

3. Occupational safety and health education is necessary so that youngsters can explore the disease and accident record of various occupations *before* selecting a career to pursue or a job to take. Prior to choosing an occupation, adolescents should be encouraged to weigh the hazards of various jobs along with more common considerations like pay, nature of the work, and hours. Once people are committed to a career ladder or are actively employed in a job, the opportunity and motivation to change occupations if their current work is found to entail undesirable safety or health risks are severely limited.

What the Goals of Occupational Safety and Health Education Are

Instruction in job safety and health can focus on promoting four major goals: general awareness, skill development, hazard identification, and attitude development. Which of these objectives you seek will depend on your community's occupational configuration, your students' particular interests in and needs for information regarding workplace injuries and accidents, and potential points of entry in your ongoing curriculum where this topic can be introduced. In chapter 2, each activity indicates in the upper right-hand corner which of the four goals it is designed to achieve. Let us look at these four goals more closely.

1. Create awareness among students of the nature and magnitude of job-related hazards and the possible effects of workplace injuries and illnesses on an employed person and his or her family. All students need to become familiar with at least the following basic concepts:

- the scope of occupational safety and health, including accidents and illnesses and the effects of work on emotional as well as physical health
- magnitude of the problem—how widespread and serious it is and how many safety and health hazards are not readily apparent but must be discovered and investigated
- causation, including not only worker carelessness, faulty equipment, and toxic substances, but also emotional upset, fatigue, newness on the job, and management's failure to eliminate or reduce the potential for accidents and diseases
- effects on family life—the fact that occupational safety and health may affect nonworking members of the family as well as employed members, both economically and psychologically
- social issues involved, including the role of government, industry, and organized labor
- worker initiative—that is, the importance of employees relying on their own initiatives to protect their safety and health

2. Help youngsters to develop the skills they will

need later in life as employed people in order to identify safety and health hazards on the job and determine how to eliminate or minimize them. Obviously, education cannot inform students about all the safety and health dangers of every occupation. Furthermore, the risks are constantly changing as old hazards are removed and new ones are discovered or introduced. However, education can help students develop the *skills* to learn *by themselves* about safety and health risks their jobs may entail and where they can secure reliable safety and health information.

3. Enable youngsters to identify and evaluate the safety and health risks of particular jobs or job clusters that interest them. Whether their concern stems from career considerations or from the fact that jobs are held by friends or members of their family, you can help pupils explore specific occupations that are especially interesting to them.

4. Foster attitudes in students that will motivate them as employed persons now or later in life to protect their safety and health on the job. Such education should stimulate students to:

- view work as a continuous source of potential safety and health hazards;
- consider, as likely future family members, the welfare of their spouses and children in terms of taking appropriate precautions in the jobs in which they will eventually be employed;
- realize that their best protection against work-related injuries and illnesses is a consistent *caveat faber* attitude—let the worker beware—because they cannot rely on management, government, unions, or often even their own co-workers to safeguard them completely;
- feel that they can develop or secure the resources and skills needed to learn what the risks of their particular job may be; and
- be aware that as employed persons they will have the right to take an active part in minimizing or eliminating whatever dangers may exist where they work.

Two serendipitous effects may emerge from any study of occupational safety and health designed to achieve one or more of the above goals. First, such a study may contribute to the general social climate of concern for job-related illnesses and injuries as students, in their future capacities as voters, industry and union officials, and government policy makers, become fully responsive to the need to make the workplace a healthful and safe environment. Second, such education may inspire some students to make a career choice to enter the field of occupational safety and health as industrial hygienists, safety personnel, and occupational health nurses, physicians, and scientists—where there is an estimated national shortage of 35,000 to 50,000 such staff.

What the Activities Are Like

Four considerations have guided the development of the learning activities in Chapter 2.

Active instructional strategies. Exercises have been prepared that require students to take an active part in learning about occupational safety and health. In most of the exercises, responsibility is placed on pupils to discover pertinent information and evaluate conflicting opinions regarding illnesses and injuries on the job. This approach has been adopted for two reasons. First, it spares you from having to become an "expert" in occupational safety and health and know the answers to all your students' questions in this field. Second, and more important, this approach ensures that maximum student learning takes place, because most youngsters develop appropriate awareness, attitudes, and skills best and retain them longest if they participate actively in the learning process.

Affective educational approaches. Everyone has nonrational and irrational, as well as rational, reasons for disregarding safety and health precautions and taking risks whether at the workplace, on the highway, or in the home. The activities have therefore been designed to help students to surface, identify, explore, evaluate, and, where appropriate, modify *all* the reasons they and other people may have for failing to follow proper work and hygiene procedures on the job. Some of the less recognized of these influences include the following:

- unwillingness or inability to face a reality that is just too dreadful to contemplate, such as death, disability, disfigurement, or loss of income
- peer pressure that makes people feel the risk of an injury or disease is worth taking because being ridiculed by co-workers or friends is a more unpleasant prospect
- inability to tolerate minor frustrations, a form of immaturity that prevents some people from doing mildly complicated tasks or tolerating minor delays in order to realize a significant safety or health benefit
- hostility to authority, which impels some people to ignore suggestions or instructions from supervisors and other persons in leadership positions
- sex-role insecurity that discourages some men from taking precautions they feel are "sissy" and inhibits some woman from taking measures they feel convey a lack of femininity

Peer education approaches. A third characteristic of these activities is that they encourage students to share information and ideas with each other about job-related diseases and accidents. This instructional strategy has been built into many of the activities for two reasons. First, students themselves have a great deal of information and many valuable opinions they can profitably share with each other. Second, youngsters need to be encouraged at an early age to exchange ideas about safety and health so that when they become employed adults they will already have had experiences in peer education that they can repeat with their co-workers as a supplement to other methods for learning about the hazards of their jobs. Peer education among employed people is extremely valuable for learning about these dangers, becoming motivated to avoid them, developing a sense of solidarity in the face of obstacles to worker safety and health, and helping to identify patterns of risks that individual, isolated workers might otherwise underestimate.

Detailed teaching instructions with flexibility. The activities offered in this guide provide you with as much information as possible on how to implement them without hindering your efforts to revise or adapt them to meet the opportunities, constraints, and needs of your particular course, grade level, students, school, and community.

Learning Activities

List & Description of Activities

1. **Introducing the Field.** Students are introduced to the field of occupational safety and health and told why it is important to study it.
2. **Inspecting the School.** Students inspect their school for safety and health hazards and interview school personnel regarding the safety and health effects of their jobs.
3. **Interviewing Family Members.** Students interview employed members of their families about the safety and health risks their parents and siblings are exposed to on the job.
4. **Treating Being a Student As a "Job."** Students treat being a student as a real "job" and identify the safety and health hazards and stresses they face in this type of "work."
5. **Developing an Inventory of Information Resources.** Students develop an inventory of resources for learning about the safety and health risks of a job by investigating the hazards of a controversial occupation of their choice.
6. **Researching a Single Hazard.** Students research the nature of a single occupational safety or health risk in a number of jobs.
7. **Interviewing Homemakers.** Students interview homemakers regarding the "occupational" safety and health hazards of their work.
8. **Motivating Employed People.** Students complete an unfinished story and use their endings as a starting point for discussing how workers can be motivated to protect their safety and health on the job.
9. **Examining Attitudes toward Safety and Health.** Students examine various attitudes, including their own, toward job safety and health.
10. **Exploring Personality vis-a-vis Job Satisfaction.** Students explore the relationships between personality characteristics and job satisfaction.
11. **Promoting Peer Education among Co-Workers.** Students role play scenarios in which a worker encourages a co-worker to protect his or her safety or health on the job.
12. **Debating Responsibility for Safety and Health on the Job.** Students in small groups debate who should be responsible for health and safety on the job—government, management, employees, or unions.
13. **Role Playing Conflicts between Workers and Management.** Students write completions to open-ended story beginnings describing conflicts between (a) employees and management, (b) employees and government officials, and (c) workers and union officials over health and safety concerns on the job. Stories are then role played.
14. **Understanding and Using OSHA.** Students learn about the Occupational Safety and Health Administration and how to use OSHA.
15. **Debating Controversial Occupational Safety and Health Issues.** Students debate in small groups one or more controversial issues related to occupational safety and health.
16. **Developing Hazard Inspection Checklists.** Students in small groups develop and pilot test a hazard inspection checklist.
17. **Exploring Women's Safety and Health on the Job.** Students investigate whether women are exposed to unique occupational hazards and, if so, what these risks may be.
18. **Investigating Work Stress.** Students investigate the role of stress in emotional and physical health and examine the workplace as one source of stress.

Activity 1
INTRODUCING THE FIELD

CAPSULE DESCRIPTION:	GOAL:	LEVEL:	TIME:
Students are introduced to the field of occupational safety and health and told why it is important to study it.	Awareness	Easy	1 to 2 Class Periods

Do not try to cover too much in this activity; simply provide an overview and introduction to the variety of occupational safety and health topics to make students aware of what the issues are. However, be sensitive to your students' special concerns and be prepared to spend more time on those aspects of occupational safety and health in which they express an interest.

1. Begin the activity by asking students who have held part-time or summer jobs to tell whether they have ever had an accident on the job or become ill because of their work. List on the blackboard the jobs and associated safety and health risks that they mention. Amplify the list by asking the students if they are aware of any job-related injuries or illnesses members of their families have experienced as a result of their work. Then suggest a few occupations, such as the following, and ask what accidents or diseases the class feels might be associated with them: professional athlete, homemaker, police officer, postal carrier, waiter and waitress, bartender, firefighter, taxi driver, truck driver, nurse, doctor, musician. You might also discuss some of the hazards of being a teacher or relate one or two personal experiences you may have had in other jobs where safety or health risks were present. Summarize by noting the large number of jobs that appear to present hazards of some kind.

2. Ask your students why they feel it might be valuable to study occupational safety and health at their age and why they may feel this is *not* a good time to learn about this field. Encourage students to debate with each other the merits of both positions. Then suggest the reasons you feel it's important that they investigate work-related injuries and illnesses using the rationales presented in the introduction to this guide, including:

- assistance in planning for a career;
- help in assessing the hazards of jobs in which they are currently employed;
- opportunity to develop appropriate attitudes toward safety and health at an early age;
- realization that industry and government cannot be expected to provide all the information they will need as employed people regarding the hazards of their future jobs; and
- importance of investigating the hazards of homemaking—a "job" most of the class will be associated with either as homemakers themselves or spouses of homemakers.

Ask those students who have held jobs what kind of information and training they were given in safety and health by their employers and whether they thought what was provided was adequate. Did they learn about any hazards of their work from co-workers, by trial and error, in pamphlets, from their parents, or in any other ways? How complete was this information? Suggest that a current study of occupational safety and health will enable students now and in the future to supplement what their employers and others tell them about the hazards of their work.

3. Use the information from the introduction and from the Overview of the Occupational Safety and Health Problem in chapter 3 to help your students become aware of the large number of employed people who suffer injuries or develop illnesses because of their work. Point out that nearly every job has its dangers and that occupational health hazards include not only physical illnesses that employed people may develop as a result of their work but also emotional stresses and problems they can experience because of pressures on the job. Have the class identify what some of these pressures might be and what effects they might have on an employed person. For this purpose, you might refer to your list of hazards that you wrote on the blackboard at the activity's beginning.

4. Present some of the key issues in occupational safety and health by reading out loud several of the scenarios provided at the end of this activity, each of which raises at least one significant question in the field of occupational safety and health. Consider breaking the class into small groups and having each group address a different scenario and report its conclusions to the rest of the class.

(Suggested answers are provided after each scenario.)

5. Conclude (if you did not begin) the activity by explaining that, while you are not an expert in the safety and health hazards of every job, what you can do is help students to develop and practice skills to learn about these hazards on their own both now and in the future. Indicate that to best promote this learning process, the subsequent learning activities they will be engaging in require them to conduct much of the work involved.

The following pages may be duplicated for student use.

SCENARIOS RELATED TO KEY ISSUES IN OCCUPATIONAL SAFETY AND HEALTH

1

John Davis works on a coke oven battery in a steel mill, but he doesn't know that he has a two to ten times higher risk of getting lung cancer than do other steelworkers. Why might he be unaware of this important piece of information? Susan Smith works in an office as a secretary and spends a good deal of time copying papers on a small copy machine located in a small room. Why might she not know that the ozone from the machine may be dangerous for her and may be causing the eye irritation she develops on occasion?

Issue: Many employed people—perhaps most—don't appear to know all the dangers their work involves. Why not?

- They don't exert themselves to find out.
- They aren't told by management.
- They are deceived by management.
- They aren't reached by government efforts to inform them.
- The dangers aren't known yet.
- They don't trust the people who have given them accurate information.

2

Rachel Cohen works in an airport and knows that she has a high risk of having her hearing damaged but that she can lessen that risk by wearing ear protectors. She refuses, however, to wear them. Why? Guy Larouche is a hockey player who knows that he risks a serious head injury by not wearing a helmet during play. Why won't he put one on? Juanita Hernandez is a manager in a large company and has been getting an ulcer, as well as feeling very nervous, because of the pressures of her job and the overtime she must put in. But she won't change jobs or slow down her pace. Why not?

Issue: Many employed people who are aware of some of the hazards of their work can't or won't do all they can to protect themselves. Why not?

- See the introduction.
- Financial losses in salary, bonuses, or overtime may be involved.

3

Ruth Santini is an assembly line worker who is bored and unhappy with her job. How might her feelings about her job affect her family? Darroll Washington injured his back as a nurse lifting a patient and has been laid up at home for six weeks. What effects might this have on his family?

Issue: Work-related injuries and illnesses, including mental pressures, can cause problems for other members of a worker's family, not just the worker. How might they do this?

- Financial losses.
- Tension from spending too much time together as a result of being laid up.
- Inability to be a good spouse, parent, or friend because of tensions, illnesses, or injuries on the job.
- Carrying home injurious substances on their clothing or bodies.

4

Fred Stanley, a new worker in the coal mine, was killed when he was struck by a rail car that backed into him, even though its warning bell was ringing. Whose fault was the accident? Sheila O'Brien, who works as an insulator and is in frequent contact with asbestos, developed lung cancer. She also smokes cigarettes. What caused her lung cancer? Joe Radowitz didn't use the safety device on his woodcutting machine because it slowed down his work, and the faster he works the more he gets paid. A piece of wood flew out and struck him in the eye. He can no longer see out of that eye. Whose fault was the accident?

Issue: Who is responsible when workers get into accidents or develop illnesses?

- Worker, due to carelessness.
- Company, for allowing hazards to exist.
- Company, for not educating or training workers about the existence of hazards and how to avoid them.
- Co-workers, for not warning new workers of a danger or warning old workers of a newly discovered danger.
- Government, for not inspecting the workplace or enforcing safety and health laws.

5

Being a laundry worker may require heavy lifting. Should Roberta Kruger take this job? A large number of bartenders have drinking problems. How can Peter Cabot decide whether to train for this job? All his life Ted Antonopolous has wanted to be an air traffic controller. However, he's a very nervous person and this job involves a great deal of pressure. Should he train for the job?

Issue: Might a specific job danger indicate that persons with certain physical or emotional problems or traits should not enter that occupation? Are there ways people can prepare for job hazards that might otherwise have adverse effects on their safety or health?

- People with physical handicaps should consider avoiding jobs that require heavy labor they cannot perform or can perform only with difficulty—e.g., people with weak backs becoming coal miners, laundry workers, or nurses.
- People with certain emotional make-ups—e.g., excessive tendencies toward risk taking, low frustration tolerance, impulsiveness, depression—should consider avoiding jobs that may surface or exacerbate these traits.
- If too many people avoid jobs in which work conditions may create or aggravate physical difficulties or mental stresses, this may absolve industry and government of their responsibility to provide a safe and healthful workplace for every worker.
- People considering taking jobs in or training for occupations that present hazards to which they are or may be particularly sensitive can learn about ways to reduce those risks. They can also assess whether these methods would be adequate to protect them and whether they would really adhere to them. For example, would exercises to strengthen back muscles enable someone with a weak back to perform safely jobs requiring heavy lifting, and would the person actually do the exercises regularly?

Activity 2
INSPECTING THE SCHOOL

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students inspect their school for safety and health hazards and interview school personnel regarding the safety and health effects of their jobs.	Awareness Skill Development	Easy	2 to 3 Class Periods

Have your students individually, in small groups, or as a class (1) develop checklists of hazards to inspect in their school and (2) prepare questions about these hazards to ask teachers, custodians, administrators, and secretaries employed in the school. A sample observation guide and questionnaire are provided at the end of the activity. The inspecting and interviewing can be conducted individually, in pairs, or in small groups. If small groups are used, each group can be responsible for interviewing a different set of school employees—teachers, custodians, administrators, secretaries—and reporting its results to the rest of the class. Different small groups can also be responsible for inspecting different parts of the school—bathrooms, boiler rooms, athletic facilities, classrooms, corridors, science laboratories, etc. Students should realize that a major focus of their interviews with personnel should be on the possible emotional stresses of being a teacher, secretary, school administrator, or custodian.

In addition to interviewing school employees regarding the occupational safety and health hazards of their jobs, students can also ask questions designed to reveal how aware these groups are of the risks run by school personnel employed at jobs other than their own. For example, do teachers know about the safety and health hazards custodians face, and are custodians familiar with the emotional tensions of being a teacher?

To supplement their interviews and inspections, students can request any school personnel accident and illness data that are not confidential from school officials and employee unions and associations.

Have the students report the results of their interviews and inspections to the rest of the class and compare findings. Questions the class can address after the exercise include the following:

1. If different students inspected the same areas in the school but identified different hazards, what might this say about how all employees in a job may not be equally aware of the risks they face and about how important it may be for workers to share information with each other about hazards they discover independently?
2. If students identified any safety or health risks, why have these hazards been allowed to exist? Have school personnel been warned about them? Might the continued presence of these hazards in a school suggest anything about whether similar risks exist in other work settings? Why or why not?
3. If the students themselves were employed in a job where these hazards were present, would they do anything to eliminate or reduce them? Why or why not? If so, what would they do?
4. Did the students observe or discover from school health records any hazards that the people whom they interviewed did not mention? Did interviewees mention any hazards not reflected in the school health records? If so, what might account for these discrepancies?
5. Are there different risks that teachers, secretaries, school administrators, and custodians face? If so, what accounts for the different exposure?
6. What did the interviewees say they have done or are doing to minimize the risks of their work? If they have not tried to reduce them, why not? Should they? What might encourage them to do so?
7. How informed is each group of employees about the hazards the other groups face on the job? Should each group be made aware of the hazards the other groups face? Why or why not?

The following pages may be duplicated for student use.

SAMPLE OBSERVATION GUIDE

1. Are any of the stairways dangerous? If so, how?
2. Is there any electrical wiring that appears to be dangerous? Where?
3. Do the rooms get very overheated in spring or fall or very cold in winter?
4. Do loud bells or noise from students create health hazards?
5. Are there dangerous conditions in the following locations:
   a. gymnasium and other athletic facilities?
   b. science laboratories?
   c. home economics (cooking) areas?
   d. shop classrooms?
   e. vocational education classrooms?
   f. cafeteria?
   g. parking lot?

SAMPLE QUESTIONNAIRE

1. Have you ever had an accident or been injured in any way on the job?
2. If so, what happened and why?
3. If so, what, if anything, have you done to prevent it from happening again?
4. Do you know about accidents that have happened to other teachers (administrators, secretaries, custodians)? If so, what happened?
5. What other safety hazards does this job present for you? For example, is there a risk of being assaulted by students?
6. Have you ever tried to have any of these dangers eliminated or reduced? If so, what have you done and what were the results? If not, why not?
7. Does your job have any harmful effects on your mental health—that is, does it cause any bad feelings for you?
8. If so, what feelings does it create, how often does it do so, and how unpleasant are the feelings?
9. What aspects of your job create these feelings?
10. Have you ever taken steps to reduce these feelings? If so, what have you done? If not, why not?
11. Do you think your job affects other teachers (administrators, etc.) the way it bothers you? If so, what, if anything, do they do to handle the problem?
12. Did you know about these safety and health hazards before you became a teacher (administrator, etc.)? If so, how did you learn about them? If not, would you have pursued this career had you known about them in advance?
13. Do any of these safety or health hazards affect your family life in any way? For example, do the feelings the job creates for you spill over into your family life?
14. Do you feel that administrators (secretaries, teachers, custodians) face any safety or health hazards in their work which you do not? If so, what are the differences?

Activity 3
INTERVIEWING FAMILY MEMBERS

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students interview employed members of their families about the safety and health risks their parents and siblings are exposed to on the job.	Awareness Skill Development	Easy	1 to 2 Class Periods

Students begin this activity by individually developing a questionnaire for interviewing their employed parents and siblings about the safety and health hazards of their jobs. Homemaking should be considered a job unless you plan to have your students engage in Activity 7. If your students engaged in Activity 2, the questionnaire they developed for that activity can be used as a starting point for this questionnaire. Otherwise, students can now examine the sample questionnaire provided at the end of Activity 2 as a guide to drawing up the questionnaire for this activity.

Break the class into small groups and have each group develop a composite questionnaire containing the best features of the individual efforts. Collect the group questionnaires and, as a class, develop a single master questionnaire incorporating all the useful features of the group questionnaires. It is important that the same questionnaire be used by every student for the interviews so that the answers can be easily compared. While this process of developing the questionnaire may seem laborious, it is an important learning exercise in its own right because it will require the students to give serious thought to what it is they want and need to learn about job safety and health.

Instruct the students to interview their family members at a time when parents and siblings can give their undivided attention to the questions rather than answering them "on the run" or while they are doing something else (like watching television or doing the dishes). Tell your students not to record the names of their family members on the questionnaire, just their occupations. That way students can inform their parents that their answers will remain anonymous.

Parents and siblings—whether they work or not—can also be interviewed regarding their perception of the hazards *other* members of their family face on the job. For these interviews, students should indicate on each questionnaire the person whom they have interviewed—for example, "husband of nurse," "wife of construction worker," "15-year-old son of salesperson."

When the interviews have been conducted, have different small groups of students analyze the responses in terms of the following questions:

1. Did men and women identify different hazards? Which group identified more?
2. Did siblings and parents identify different hazards?
3. If similar occupations or types of jobs (for example, white collar vs. blue collar vs. industrial jobs; service professions vs. manufacturing jobs) are represented among the responses, did people in these similar jobs describe and agree on the same hazards? If not, why not?
4. Did other family members have accurate information about the risks employed members face?
5. Are safety or health hazards mentioned more?

Follow-up discussion in small groups or as a class can focus on the following issues:

1. How serious and widespread do occupational hazards appear to be among the interviewed family members? Does it appear that their information is accurate and complete?
2. How informed do other family members appear to be about the risks the employed members of their family face on the job? Should they be aware of these hazards? Why or why not?
3. How actively involved are the workers in eliminating or reducing the dangers of their jobs? Should they be more active? If so, what could they do?

As a follow-up activity, students can research the occupational safety and health risks of one or more of the jobs held by the people whom they interviewed and compare the hazards they discover with what the employed people indicated were the dangers of their jobs. See Activities 5, 6, 7, and 8 for how to conduct this follow-up exercise.

Activity 4

TREATING BEING A STUDENT AS A "JOB"

CAPSULE DESCRIPTION: Students treat being a student as a real "job" and identify the safety and health hazards and stresses they face in this type of "work."	GOALS:	LEVEL:	TIME:
	Awareness Attitude Development	Easy	1 to 2 Class Periods

Have your students write their responses to the following scenario and sign their names:

Pretend that your full-time "job" is being a student. Treat it as you would if you were a doctor, a truck driver, or a secretary—something you do five days a week and get paid for. It's as if you were being paid to attend classes, study, and take tests, and your teacher were your "boss."

What hazards to your safety and health does your job as a student present. What risks of accidents or injuries, if any, do you face? What risks of diseases or illnesses? Does your job affect your mental health—does it create any stresses or other unpleasant feelings?

Collect the papers and read them. Using the responses, set up small groups that include students with different points of view. The following class period, break students into these groups, return the papers, and provide these instructions:

1. Before beginning, appoint a spokesperson for your group to tell the rest of the class what you said during your discussion.
2. Then read the papers of the other members of your group.
3. Discuss and agree on what the safety and health dangers are of being a student. Think of as many hazards as you can in addition to those you already listed on your papers. The spokesperson should write down all these risks.
4. Remember that health hazards include whether your "job" causes any unpleasant feelings for you or involves any stress.
5. Discuss and agree on *why* being a student may have these effects on your safety and health. Write down these reasons.
6. Would you want a "job" as student if the pay was the same as for teachers (say $13,000 a year)? Suppose it paid what doctors earn (maybe $70,000 a year)?
7. Discuss *why* you would or would not want to be a student if you earned this much. Write down reasons.

Have the spokespersons from each group present their group's conclusions to the rest of the class, and encourage other students to ask questions of the spokespersons and the groups they represent. Keep a running tally on the blackboard of the "job" hazards and stresses of being a student and of how many members of the class would take the "job" at the salary level of a teacher or a doctor.

Conclude the activity with a class discussion of the following issues:

1. Which, if any, of the risks and stresses of being a student would you not have known about had you not been a student yourself? What does this indicate about the importance of knowing the risks of a job before deciding to prepare for it or take it?
2. If there are some risks and stresses you would have been familiar with even if you were not a student, how would you have known about them? What does this suggest about resources for learning in advance about the safety and health hazards and stresses of different jobs? How else could you find out what the risks are of being a student if you were thinking of pursuing this "career"?
3. As a current student, what, if anything, could you do to eliminate or reduce the hazards and stresses of this "job" that you identified in your small groups and that are listed on the blackboard?
4. Aside from pay, are there other ways in which being a student is different from holding a job? Are there other ways a real job could present safety or health hazards which being a student does not?

As an optional follow-up activity, students can interview teachers, school administrators, secretaries, and custodians regarding what they think the hazards and stresses of being a student are. The class can compare the responses these people give with its own assessment of the risks and stresses and, if there are differences, attempt to account for them. For example, why may these adults not have perceived all the risks or stresses the students identified? Does this mean that many people have misconceptions about the hazards of jobs—even ones they observe first-hand every day—when they don't work at those jobs themselves?

Activity 5

DEVELOPING AN INVENTORY OF INFORMATION RESOURCES

CAPSULE DESCRIPTION:	GOAL:	LEVEL:	TIME:
Students develop an inventory of resources for learning about the safety and health risks of a job by investigating the hazards of a controversial occupation of their choice.	**Skill Development**	**Average**	**2 to 3 Class Periods**

In this activity, students focus on identifying, using, and evaluating the reliability and usefulness of different sources of information for learning about the safety and health aspects of any job. Students can conduct the activity individually or in small groups.

Each student or group of students selects an occupation of its own choosing or from a list you provide. The occupations that are investigated should be controversial—that is, there should be some disagreement in society regarding the risks they pose. The last page of the activity provides a list of some of these controversial jobs. For a more complete list, consult pages 368 to 419 in J. M. Stellman and S. M. Daum, *Work Is Dangerous to Your Health* (New York: Vintage, 1973; paperback).

Ask the students to identify what they think might be useful sources of information for learning about the job hazards of the occupations they have chosen to investigate, and have them write these sources on the blackboard. Supplement the list with the following approaches:

1. interviewing:
   - workers
   - union officials
   - supervisors
   - management officials
   - company medical staff
   - staff of local nonprofit worker groups
   - OSHA, NIOSH, and National Cancer Institute (NCI) staff
   - industrial hygienists and public health and safety researchers at local universities and hospitals
2. observing and touring workplaces
3. reading pertinent literature from:
   - OSHA, NIOSH, NCI
   - independent researchers
   - nonprofit worker groups
   - libraries
   - the Resources section of chapter 3

Make sure your students realize that they are engaging in this activity not simply to learn about the hazards of a particular job but primarily to learn how to identify, use, and evaluate *methods* for discovering the safety and health risks of *any* occupation. They are expected to have a list at this activity's end of what they feel are the best sources of information for learning about these risks and a justification for why they have selected those particular sources.

After the research has been conducted, each student or group of students shares its experiences with the rest of the class in terms of (1) what the risks are of the occupations studied, (2) what sources of information provided the *most* information about them, (3) what sources seemed to provide the most *reliable* information about them, (4) what sources did *not* appear to provide much or reliable information, and (5) why they concluded that some sources were more reliable than others.

CONTROVERSIAL OCCUPATIONS

actors and actresses
asbestos workers
auto repairpersons
bakers
clerks and retail salespersons
coke oven workers
construction workers
copper smelter workers
dental assistants
dentists
dry cleaners
dye makers
farm workers
fire fighters
flax, hemp, and cotton workers
flight attendants
glassmakers
hairdressers and beauticians
homemakers
insulation workers
laundry workers
metal workers
miners
nurses
office workers
painters and paint makers
physicians
plastics workers
police officers
postal workers
printers
roofers
rubber workers
solvent makers and users
textile workers
wood makers

Adapted in part from J. M. Stellman and S. M. Daum, ***Work Is Dangerous to Your Health*** (New York: Vintage, 1973).

Activity 6
RESEARCHING A SINGLE HAZARD

CAPSULE DESCRIPTION: Students research the nature of a single occupational safety or health risk in a number of jobs.	**GOALS:** Skill Development Hazard Identification	**LEVEL:** Difficult	**TIME:** 2 to 3 Class Periods

This activity is similar in method to the previous one but differs by involving students in researching a *single* safety or health problem in a *number* of occupations, rather than a variety of hazards in a single occupation. The activity is more difficult to conduct than Activity 5 because it may require more interviews, observation, and literature reviews. It will, however, be a valuable exercise for students interested in learning more about a particular safety or health risk.

Among the *safety* hazards students can explore are the following:

- electrical hazards
- falls, slips, trips
- fires and explosions
- collapses and cave-ins
- dangerous stationary machinery
- dangerous moving machinery
- heat and cold stress
- vibration
- lifting and other forms of physical exertion

The following are the most important *health* hazards students can investigate:

- noise
- dusts/pneumoconioses
- toxic gases, metals, and chemicals
- carcinogens
- heat stress/cold stress
- radiation
- skin hazards
- chronic diseases
- emotional stresses and effects of work on mental health
- work effects on family life and members
- effects on sexual behavior
- postural problems

In general, students can designate any risk area that interests them for detailed analysis; the only requirement of this activity should be that they investigate and compare the danger in a number of different occupations.

After conducting their research, students share what they learned with the rest of the class and address questions similar to those listed at the end of Activity 5. In addition, students can compare which occupations present the greatest hazard for the particular risks they studied and evaluate why some jobs are more dangerous in this regard than others. For example, are some jobs less hazardous than others simply because they involve less risk, or is it because management or employees in these workplaces have taken steps to eliminate or minimize them?

Activity 7
INTERVIEWING HOMEMAKERS

CAPSULE DESCRIPTION:	**GOALS:**	**LEVEL:**	**TIME:**
Students interview homemakers regarding the "occupational" safety and health hazards of their work.	**Awareness** **Hazard Identification**	**Easy**	**2 to 3 Class Periods**

Our society tends to ignore the fact that homemaking is a form of employment because it is not *paid* work. However, homemaking should be seen as a career, complete with its own safety and health hazards. Even students who do not plan to be homemakers need to become familiar with the nature of the work because, as future family members, they may be directly involved in the homemaking activity of their spouses.

Homemakers are exposed to a variety of dangerous substances in the home, including a number of potentially harmful cleaning fluids and compounds. In addition, there are a number of safety hazards present in many homes that can result in such injuries as burns during cooking or strains from lifting cleaning equipment, groceries, and children. Finally, and perhaps most significantly, homemakers are often subject to a variety of emotional stresses, including boredom, repetitiveness in their work, lack of recognition for their work, and isolation. Homemakers who are also wage earners may have all the additional problems of a 50- to 80-hour work week.

Students conduct this activity by developing an interview guide (see sample at the end of this activity) and talking with homemakers regarding the safety and health hazards of their work. It is important that your students try to "probe" into the homemakers' attitudes about homemaking, because some homemakers may give stereotypical answers about enjoying their work that they may not completely feel (the same is true for many other workers, as well). You may want to have your students practice asking probing questions in class in order to learn how to pose them tactfully.

Students can also develop a second interview guide (sample provided at the end of this activity) for interviewing other nonhomemaker members of a family regarding *their* perceptions of the safety and health risks of being a homemaker.

Students can interview their parents, random residents in the community, and teachers, secretaries, and administrators in their schools.

In analyzing the results of their interviews, students can compare similarities and differences among the homemakers' responses and also discrepancies between what the homemakers said about their work and how the other family members perceive homemaking. For example, are spouses and children generally unaware of the boredom some homemakers experience in their work? Are they familiar with the dangers of cooking and using caustic cleaning agents?

Students can conclude the activity by evaluating—

1. how prevalent and serious the hazards of homemaking appear to be;
2. whether any of the hazards of homemaking can be eliminated or reduced and, if so, how;
3. whether other members of the family need to be "educated" to the hazards homemakers are exposed to and, if so, how;
4. what role, if any, the nonhomemaking members of the family can play in alleviating the safety and health risks to the homemaker; and
5. what role, if any, society at large needs to play in improving the working conditions of homemakers—for example, by providing better day-care facilities, safer cleaning products, and more recognition of the value of homemaking as a career.

The following pages may be duplicated for student use.

SAMPLE HOMEMAKER INTERVIEW GUIDE

1. Have you ever had an accident or suffered an injury as a homemaker? If so, what happened? How serious was it?
2. Are there any (other) safety risks you feel you are exposed to as a homemaker? If so, what are they?
3. How did you learn about these risks? From your parents? Other family members? Newspapers? Magazines? Friends? Television? Advertisements?
4. Have any other homemakers whom you know been injured? If so, how?
5. Have you ever suffered an illness or developed a disease because of your homemaking activities? If so, what did you develop? How serious was it?
6. Have any other homemakers whom you know developed any illnesses or diseases? If so, what were they?
7. Are there any (other) health risks you feel you run by being a homemaker? If so, what are they?
8. What kinds of pressures or unpleasant feelings, if any, does homemaking create for you? How often do you have these feelings?
9. Do other homemakers whom you know experience similar feelings?
10. Do you feel that the other members of your family are aware of the safety, health, and emotional risks of your work that you have described? If not, why not? If so, how have they become aware of these dangers?
11. Would you like to learn more about safety or health hazards of homemaking?

SAMPLE INTERVIEW GUIDE FOR OTHER FAMILY MEMBERS

1. Who is the homemaker in your family? Does anyone else share in the homemaking work? If so, who?
2. Has the homemaker in your family ever had an accident or suffered an injury as a part of his or her work? If so, what happened? How serious was it?
3. Are there any (other) safety risks you feel homemakers are exposed to as part of their work? If so, what are these risks?
4. How did you learn about these risks? Did the homemaker in your family tell you about them? Did you learn about them by helping out with the homemaking chores?
5. Has the homemaker in your family ever suffered an illness or developed a disease because of his or her homemaking work? If so, what did he or she develop? How serious was it?
6. Are there any (other) health risks you feel homemakers are exposed to as part of their work? If so, what are these dangers?
7. Does being a homemaker create any pressures or unpleasant feelings for the homemaker in your family? If so, what are these pressures and feelings?
8. How have you learned about what the homemaker in your family feels about homemaking? Would you like to know more about how she or he feels?
9. Do you feel you are aware of the safety, health, and emotional risks of being a homemaker? If so, how did you learn about these risks?

Activity 8

MOTIVATING EMPLOYED PEOPLE

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students complete an unfinished story and use their endings as a starting point for discussing how workers can be motivated to protect their safety and health on the job.	**Skill Development** **Attitude Development**	**Easy**	**1 to 2 Class Periods**

Students begin the activity by reading the story beginning provided at the end of this activity and discussing in small groups how they would go about motivating a brother-in-law to spray the bushes safely. For younger students and pupils with reading problems, you may want to read the story aloud as they read along silently themselves. As an alternate approach, have the students write their story endings the day before and compare what they have written when they break into their small groups.

Before the discussion begins, each group appoints a spokesperson who will relate his or her group's conclusions to the rest of the class.

When the discussions are over, have the spokespersons (a) describe their group's motivational strategies to the rest of the class and (b) respond to questions from other groups and you about why they feel these methods would be effective. Keep a running list of the techniques on the blackboard as they are mentioned. Conclude the activity by relating the issues raised and strategies identified to considerations of safety and health at the workplace. For example, have the students discuss:

1. how "macho" concerns, or concerns with appearing feminine, can lead to the neglect of health and safety precautions;
2. why fatalism and apathy—"nothing I can do will make a difference"—are inappropriate attitudes; workers can usually have some control over their safety and health on the job;
3. how "it-won't-happen-to-me" and "the-odds-are-against-it" thinking is self-defeating and self-fulfilling and does not take into consideration the seriousness of the problem if it does happen;
4. how laziness and habit can interfere with taking the extra time and exerting the extra effort to implement good work practices;
5. how mistrust of the source of information can limit a message's impact;
6. how lack of time can discourage proper communication of safety and health instructions;
7. how leaving the job of health and safety entirely up to others (e.g., government, management) is to place oneself at the mercy of forces that may not protect us adequately or at all, and;
8. how the need to "live with" the people we educate requires the use of tact in promoting health precautions among co-workers.

The following pages may be duplicated for student use.

SAMPLE INCOMPLETE STORY

"We've Got to Spray the Bushes . . ."

Read the following story and then discuss with the other students in your group how you will solve the problem it describes. Try to reach an agreement in 15 minutes regarding the best courses of action to take. Before you begin your discussion, be sure to appoint a spokesperson who will describe your group's conclusions to the rest of the class.

The leaves on several bushes in your back yard have suddenly turned brown in the past two days, and a few have begun to fall off. You're really upset about this because you and your family have spent a lot of time and money fixing up your back yard. You spend a great deal of time relaxing there, having cookouts, and chatting with friends and neighbors.

Your sister-in-law from across town visited yesterday and said the same thing had happened to her bushes. In fact, three of them died before she found out that a deadly bug had been attacking all the neighborhood plants. She told you that, if you wanted to save your bushes, you would have to spray them immediately with something called ***poreliar.*** She said this was the only pesticide that could destroy the bug killing everybody's plants.

You didn't want to waste another moment, so you ran out only a few moments ago and bought some poreliar from a hardware store. But when you bought the two large spray cans, the sales clerk warned you that some other customers who had used poreliar had gotten it on their skin and been terribly burned. In addition, two people who must have breathed too much of the spray are still in the hospital in serious condition and are having a great deal of trouble breathing.

But your problem doesn't end here. You have to go to your job in a few minutes, and you can't call in sick this time, either. So you don't have time to do the spraying yourself. You're going to have to ask your brother-in-law who lives upstairs to do the spraying. You feel this is the least he can do for you since you and your wife don't charge him any rent for living upstairs.

Your brother-in-law is a nice guy, but he's somewhat clumsy and careless. For example, when you taught him how to use your power lawn mower, he almost cut the fingers off his right hand by trying to clear the grass out of the chute without shutting off the engine—even though you'd warned him about this. Once, when you saw him using an electric saw and cutting some wood directly toward his body, you tried to show him the safe way to do it, but he told you to leave him alone, he knew how to cut wood.

So you know that you have to go over very carefully with him how he should do the spraying to make sure that none of the spray gets on his skin, that he doesn't breathe any of it, and that he keeps the rest of his family (and yours, too, when they come home) out of the back yard while he does the spraying.

You've just gone upstairs to talk to your brother-in-law and are having a cup of coffee with him in his kitchen. You have to leave for work in 15 minutes.

How will you get your brother-in-law to do the spraying SAFELY?

Activity 9
EXAMINING ATTITUDES TOWARD SAFETY AND HEALTH

CAPSULE DESCRIPTION: Students examine various attitudes, including their own, toward job safety and health.

GOAL: Awareness

LEVEL: Easy

TIME: 1 Class Period

People have different attitudes toward safety and health that may influence whether they are willing to take precautions against incurring illnesses and injuries on the job—and how they feel about encouraging other people to avoid risks at the workplace. This activity will help youngsters to identify, surface, and explore what many of these feelings are.

Have your class respond to several of the vignettes provided at the end of this activity in terms of (a) what they would do if they were in each situation and (b) what their "action" or "inaction" may reveal about their attitudes toward safety and health. The class can respond individually, in pairs, or in small groups to the vignettes. Your students can also develop their own vignettes for other class members to respond to once they have discussed some of those provided at the end of this activity.

After the vignettes have been discussed, review the variety of attitudes, reflected in the responses, that people can have toward safety and health. Jot down these attitudes on a blackboard.

Encourage the class to suggest which of these attitudes might explain why many people engage or fail to engage in safety and health measures both on the job and off the job. Ask, for example, why the students themselves do or do not:

- brush their teeth after every meal
- wear safety belts when they drive or ride in a car
- ride their bicycles in the same direction as the traffic
- signal turns when they ride their bicycles
- cross streets before the lights are with them
- smoke cigarettes
- overeat or eat a great deal of junk food or drink soda pop
- exercise regularly

As the students respond to these questions, add to the list of attitudes on the blackboard those new attitudes toward safety and health being expressed and point out the ones being reiterated.

Supplement the attitudes the students identify with the following:

- unwillingness or inability to face a reality that is just too dreadful to contemplate, such as death, disability, disfigurement, or loss of income. Taking safety and health precautions can be an admission that work and life *are* dangerous—not a pleasant thought to be regularly reminded of.
- the "it-won't-happen-to-me" form of denial—according to which people feel that while what they are doing may be dangerous, *they* won't have an accident or become ill because statistically the odds are so small, because they think they are "more careful" than the people to whom injuries and diseases do occur, or because they have some other rationalization for believing they are "an exception to the rule."
- peer pressure that makes people feel the risk of an injury or disease is worth taking because being ridiculed by co-workers or friends is a more unpleasant prospect.
- laziness or habit that prevents people from overcoming inertia and making a small extra effort to avoid a safety or health hazard.
- inability to tolerate minor frustrations, a form of immaturity that prevents people from doing mildly complicated tasks or tolerating minor delays in order to realize a significant safety or health benefit.
- fatalism, or the feeling that "nothing I can do will affect what happens to me."
- hostility to authority that impels or enables some people to ignore any suggestions or instructions from persons in authority.
- sex-role insecurity that discourages some "macho" men from taking precautions they feel are "sissy" and inhibits some women from taking measures they feel convey a lack of femininity.

The following pages may be duplicated for student use.

VIGNETTES

1

You are a steelworker who works on top of a coke oven battery. You've just started work and been told by your supervisor to wear a respirator (face mask) whenever you see smoke coming out of the battery. There is a high risk of lung cancer on this job, he has told you, but you won't have any problems if you wear your respirator.

However, when you get to the battery on your first day at work, you notice that no one else is wearing his or her respirator even though it's pretty smoky. As you start to put yours on, a worker next to you says, "You won't be wearing that for long."

What do you do? Will you be wearing your respirator two weeks from now? Why or why not?

2

You operate a sewing machine in your job, and it has a safety shield to protect you from flying needles. However, not many people in the factory use shields because they're hard to see through and they get in the way of your work. And the faster you work, the more you get paid.

However, yesterday a worker on the other side of the room let out a scream as a flying needle lodged in her cheek. She had to go to the hospital and was lucky she didn't lose an eye.

Do you decide to use your shield now? Why or why not?

3

You are a roofer, and during the summer there is a great temptation to take off your shirt since you sweat a lot and feel hot with it on. However, you have just learned that there is an increased chance of your getting skin cancer because you work in the sun, and a shirt would help protect you against this disease. In addition, if you put a strong sun lotion on your face, you would be much less likely to get skin cancer on your face, too. But it's a nuisance to do this, and if you sweat a lot you have to put the lotion on two or three times a day.

Do you keep your shirt on? Do you put on skin lotion? Why or why not?

4

You work as an insulator and know that you come into contact with asbestos, which can cause lung cancer and asbestosis (a dust disease of the lungs). Recently, you have developed a slight cough, and you know you could have some tests done to see if anything serious is developing. However, you'll have to pay about $100 for the tests. You're also afraid that if a disease is discovered, you'll lose your job.

Do you go for a checkup? Why or why not?

5

You live in a coal mining region where most of the members of your family have worked in the mines for two generations. You would like to stay in the area, because it's your home and all your relatives are there. However, the only work you can get is in the mines. You know that mining is the most dangerous job in the country, and some of your relatives and friends have either been killed in mining accidents or developed "black lung" disease.

Do you go to work in the mines and stay with your family and friends, or do you move out of the region and find safer work somewhere else?

6

You are a nurse and have a chance to transfer from the boring ward you're on now to another one where the cases are more interesting—patients who've just been operated on. However, on the new ward you will have to lift patients sometimes, and you have a weak back. Twice in the past ten years you've strained it and had to spend two weeks in bed while it healed. But the new job also pays more than your old one.

Do you accept the transfer? Why or why not?

7

You are an electrical worker, and you see some exposed wire that could cause an explosion at any time in the factory where you work. However, the company has just reduced the pay of all its electricians because of hard times and put you on half time. This has upset you a lot because you need the money you will be losing, and you've been working for the company for fifteen years and rarely been absent. In order to stop to fix the wire, you'll have to stay an extra two hours overtime to finish your other work. You won't get paid overtime for these extra two hours.

What, if anything, do you do?

8

You are a secretary and have learned that the headaches you have been having may be caused by gases from the duplicating machine with which you spend a good deal of time copying your boss's papers.

What, if anything, do you do? Why?

9

You are an executive with a company and under a lot of pressure to do well and meet deadlines. You like your work, but your doctor has told you that, if you don't slow down or change jobs, you are going to develop an ulcer or even have a heart attack. Your blood pressure is getting very high.

What, if anything, do you do? Why?

Activity 10
EXPLORING PERSONALITY VIS-A-VIS JOB SATISFACTION

CAPSULE DESCRIPTION:	**GOALS:**	**LEVEL:**	**TIME:**
Students explore the relationships between personality characteristics and job satisfaction.	**Awareness** **Skill Development**	**Easy to Difficult (Depending on the Part)**	**1 to 2 Class Periods per Part**

This activity has four parts. Part 1 is fairly easy, parts 2 and 3 may be somewhat difficult, and part 4 is moderately easy. While the four parts have a logical sequence, you can conduct any one or more of them by themselves.

Part 1. Have your students think of someone they know whose personality does not match his or her job. Have them indicate why not, and list on the blackboard in two separate columns the specific personality characteristics and specific job requirements that do not seem to match well for the people the students have (anonymously) described. Then have the class repeat the exercise, this time describing people whose personalities mesh well with their jobs. Use the results to point out that certain people are happy or dissatisfied in certain occupations because there is a good or poor fit between their personalities and the job requirements.

Then pick or have your students pick several other jobs not already discussed, and ask them to indicate what kinds of personality characteristics are needed for people to enjoy the work or at least not be troubled by it and why. Start out with some interesting occupations, such as professional athlete, police officer, airplane pilot, prison guard, undertaker. Stress how important it is for people to think about what personality characteristics they have so they can prepare for and enter occupations that will not create unnecessary unpleasantness for them.

Part 2. Have your students write what they feel are their own major personality characteristics. This may be difficult for some pupils to do, particularly at younger age levels. However, encourage them initially to attempt to do so unaided. Then provide the class with the list of personality characteristics provided in chart 1 at the end of this activity, and ask them to fill in the chart indicating where they feel they stand with regard to each trait. Conclude by asking the class to suggest jobs that might tend to make people who had some of these personality characteristics unhappy and why.

Part 3. Have each student (a) identify one or more occupations he or she might like to pursue and (b) research what personality characteristics from chart 1 might go best with those jobs. The research can be conducted by interviewing workers, employers, and personnel department employees in companies; talking with relatives and friends currently employed in those occupations; reading pertinent literature on the jobs; and, where possible, personally observing the work that goes on in these jobs. Students may find it helpful to use chart 2 at the end of this activity during their research.

After conducting the research, each student compares his or her own personality characteristics (such as those that may have been identified in part 2 of this activity) with the requirements of the job and identifies instances of compatibility and conflict between the two.

Have the class break into pairs in which each student examines the personality characteristics needed for the job the *other* student in the pair researched. Based on what he or she knows about the other student's personality, the student suggests whether that job would be "good" or "bad" for him or her and why. The "analyzed" student explains whether or not he or she agrees with this assessment and why. Then the pairs reverse roles and repeat the exercise.

Part 4. Follow-up small group or class discussion for any of the above three exercises can focus on the following issues:

1. In cases where personality and job do not match, what reasons may there still be for considering pursuing that career anyway?
2. In cases where personality and job do not match, what kinds of things, if any, can people do now or later when employed in the job which may help create a better match? Can the requirements of the job be altered or avoided? How? Can personality traits be modified? How?
3. Personalities change as youngsters mature. Which personality characteristics, if any, on chart 1 (see the end of this activity) may change as

students grow older, and how might they change? Why might they change? What does this indicate about selecting this early in life a career to pursue?

4. How might a job affect the emotional health of someone who did not have the personality required to do it well or enjoy doing it?

As a variation or supplement to the above four exercises, students can repeat the same steps with regard to human *physical* capabilities and job fit. A surprising number of jobs make physical demands on workers, in addition to the obvious occupations requiring physical labor. See how many of these occupations your students can identify. You can supplement their list with such jobs as typist, telephone operator, surgeon, teacher, retail clerk, and police officer, which require long periods of standing still or sitting, and with such jobs as nurse, laundry worker, and postal employee, which involve heavy lifting. Students should be able to empathize well with the former category, seated as they are a good part of every school day.

The following pages may be duplicated for student use.

CHART 1: PERSONALITY CHARACTERISTICS
or
WHAT ARE YOU LIKE?

I am:	**Not at All**	**Somewhat**	**Very**
1. friendly			
2. aggressive			
3. quick to anger			
4. neat			
5. quiet			
6. noisy			
7. a loner			
8. talkative			
9. lazy			
10. active			
11. competitive			
12. a leader			
13. a follower			
14. unable to sit still			
15. able to work alone			
16. always taking risks			
17. adventuresome			
18. happy			
19. unhappy			
20. in need of supervision			
21. patient			
22. a hard worker			
23. someone who likes praise			
24. afraid of criticism			
25. someone who likes to work alone			
26. someone who likes to work with others			
27. flexible—I can change my mind, activity			
28. someone with will power—I can resist temptation			
29. loyal			
30. emotional			
31. easily made tense			
32. always cool and calm			
33. not easily flustered			
34. aggressive, forward			
35. sympathetic, understanding			
36. ambitious			
37. other (say what) ______________________			
38. ______________________			
39. ______________________			
40. ______________________			

CHART 2: JOB REQUIREMENTS AND CHARACTERISTICS
or
WHAT THE JOB INVOLVES

The job involves:	**Never**	**Sometimes**	**Often**	**All the Time**
1. competing with other people				
2. getting others to do things				
3. doing the same thing over and over				
4. paying attention to details				
5. leading other people/responsibility				
6. working long hours/overtime				
7. staying in one place or position				
8. following orders				
9. following written instructions				
10. being watched over/supervised				
11. being left on your own				
12. working with other people				
13. helping other people				
14. working as part of a team				
15. being able to keep calm under pressure				
16. getting yelled at				
17. being criticized				
18. getting praised				
19. not having a job for sure—little job security; may be fired or laid off				
20. working with people you may not like				
21. working with people who may not like you				
22. changing assignments or tasks often or quickly				
23. not knowing what's in store for you the next week or day on the job				
24. doing lots of different things/variety				
25. being around food or alcohol				
26. being around animals				
27. other (say what) ____________________				
28. ____________________				
29. ____________________				
30. ____________________				

Activity 11
PROMOTING PEER EDUCATION AMONG CO-WORKERS

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students role play scenarios in which a worker encourages a co-worker to protect his or her safety or health on the job.	**Skill Development** **Attitude Development**	**Easy**	**1 Class Period**

Peer education among employed people is essential for a number of reasons. First, some workers have little confidence in the job safety and health advice given to them by management, government, and health professionals. They do, however, usually trust their co-workers to "tell it like it is." In addition, it will not be possible for any of these other sources of information to reach every worker at risk with job-related safety and health information. A "snowballing" method of education is therefore essential by which those relatively few workers who are reached by employers, health professionals, and government information campaigns pass on what they have learned to their co-workers. Finally, peer education among workers is important because people are receptive at different times in their lives to learning about injury and illness prevention. Often people are simply not "ready" to assimilate and use proffered help when management or government agencies approach them with information or advice about their safety and health. However, employed people who take on responsibility for peer education can be available at precisely those "teachable" moments when a co-worker is most receptive to a safety or health message. Given all these advantages of peer education, it is important that students *practice* giving advice to their peers and urging them to follow safe and healthful workplace procedures.

The role plays provided at the end of this activity have a dual purpose. The first goal is to help students to surface and examine some of the reasons people do and don't take proper safety and health precautions on the job so that they can better understand their *own* attitudes toward risk-taking behavior. The second purpose of the role plays is to provide students with an opportunity to practice peer education techniques that take into account the reasons different people fail to protect their safety and health on the job—techniques that students can use later in life as employed people with their co-workers.

The first set of role plays involves a nurse who wants to persuade a co-worker to adopt two safety and health precautions that this second nurse neglects to practice. The second set of role plays takes place between a worker whose *own* safety and health are threatened by a co-worker who refuses to follow proper safety measures on the job. This role play indicates that workers may want to engage in peer education for their own self-interest and should learn how to tactfully tell their colleagues not to engage in practices that jeopardize the health or safety of other employed people. The third set of role plays concerns a husband and wife. Although not a case of peer eduation among co-workers, the exercise is important because spouses can sometimes be more effective in motivating each other to be careful on the job than can co-workers. Youngsters should realize that as family members they will have excellent opportunities to promote job safety and health among their spouses and children.

Before having the students role play the scenarios, ask them whether and why *they* think peer education among workers might be valuable; then present the reasons suggested at the beginning of this activity. Next, have half the class read Role Profile A in Set 1 and the other half read Role Profile B in Set 1. Instruct the class not to read each other's role profiles. Then, ask for volunteers to take the parts. While you may call on particular students to ask if they would like to take the parts, do not attempt to require anyone to do so. To encourage volunteers you may need to do the following:

1. Allow the students to conduct the role play from their seats, rather than in front of the entire class;
2. Take one of the two parts yourself; or
3. Invite another teacher into the class and both of you conduct the role play.

If role playing is not possible at all, you can have the students *read* both role profiles and then *discuss* how they think role player A in each instance should approach the worker in Role Profile B. Another alternative is to break the class into small groups and have each group perform the role plays and report its experience to the rest of the class. This approach has the advantage of allowing more students to engage in the role plays, but its drawback is the additional time it requires.

After the role play, discuss what transpired in the following terms:

1. What did the players do or say that observing students would have done differently? Why would they have said or done something differently?

2. What did the role players feel during the simulation? Would they experience these feelings in real life? Why or why not?

3. Which strategies pursued by role player A appeared to be effective in persuading player B to follow good work practices? Which strategies appeared to be ineffective? What accounted for the success or failure of each of the strategies employed?

4. Was player A reluctant to engage in peer education? Would he or she be in real life? Why are some people hesitant to engage in peer education? What are valid reasons for not doing so and what are not? When are the best and worst times or occasions on which to engage in peer education?

5. Why bother to engage in peer education on the job? Can it serve your self-interest as well as another person's?

After they have used the role plays provided at the end of this activity, your students, individually or in small groups, can write their own sets of role profiles to be acted out by other members of the class.

Conclude the activity by summarizing on a blackboard the various techniques that the students felt would be effective in inducing peers on the job to engage in safe and healthful work practices.

The following pages may be duplicated for student use.

ROLE PROFILE SET 1

Role Player A: Nurse

You are a nurse at United Illness Hospital and have been working there for 12 years. You enjoy your work, although you're not crazy about being exposed to so many diseases and having to lift so many patients. But over the years, you've been careful to wear gloves and face masks, when you needed to, to avoid diseases. You have also tried to have at least one other nurse around to help you lift or move a patient.

A couple of months ago, a friend of yours who used to be a nurse at a hospital across town came to work at United Illness. You've noticed that your friend takes some risks with safety and health. For example, your friend never wears gloves when taking blood from patients who may have viral hepatitis and so risks getting infected, too. Your friend also lifts heavy patients alone, without getting help from other nurses—even though your friend complains once in a while about having backaches.

You've decided to urge your friend to wear gloves when taking blood from patients with viral hepatitis. It's really very simple to do, even though it seems like such a bother to get gloves, put them on, and then throw them away afterwards. At first, it's a little more difficult taking blood with them on, but soon it becomes just as easy as without them. You also plan to tell your friend not to lift patients alone, but to get another nurse or two to help.

You're both having lunch in the hospital cafeteria now, and you've decided to urge your friend to be more careful about taking blood and lifting patients. **What do you say?**

Role Player B: Nurse's Friend

You have been a nurse for ten years, and only two months ago you changed hospitals. You used to work across town, but now you have a job at United Illness Hospital where the work is more interesting. United has more serious and unusual diseases among its patients than had the other hospital where you used to work.

You know that there are some risks in being a nurse in a hospital, like being exposed to infections and developing back problems from lifting patients, but you don't think the risks are very serious. You could wear gloves when you take blood from patients who have certain diseases, like viral hepatitis. This is what many of the other nurses do. But it's such a nuisance putting the gloves on and taking them off. Besides, you have trouble drawing blood when you're wearing the gloves, and the patients complain when you hurt them as a result.

You must admit that you have had a few backaches from lifting heavy patients by yourself, but as long as your back doesn't get worse, you're not going to worry about it. You know that you could get help from other nurses in lifting patients, but you feel guilty dragging them away from their work to help you. It's so much easier just to lift the patient right then and there by yourself.

You're having lunch now with a friend of yours who is also a nurse at United Illness. Your friend is usually pretty careful about making sure not to catch any patient diseases and to lift patients properly. You wonder if your friend will ever suggest that you be more careful. If your friend does speak up, **what will you say?**

ROLE PROFILE SET 2

Role Player A: Topside Coke Oven Worker

You work in a steel plant on a coke oven battery that is two football fields long and three stories high. The battery "cooks" coal, turning it into coke, which is then used elsewhere in the plant to heat up the steel. You work on top of the battery where part of your job is to fill the oven with coal and then make sure no smoke escapes from the battery while the coal is being heated.

You know that you have a very high risk of getting lung cancer from any smoke that does escape from the battery, so you do your best to keep the lids on the battery to stop up the smoke. However, the door cleaners, who work twenty feet below you on the sides of the battery, have not been doing a good job cleaning the oven doors. As a result, some of the smoke leaks out the doors. When the wind is blowing in the "wrong" direction, the smoke gets blown up to you.

You know that cleaning the doors is dirty and hard work, but you're angry that the cleaners put you at risk by not doing their job well. You also know that cleaning the doors properly can slow up the work a bit, with the result that you and the other workers might lose some money. But you're more concerned about your health than with a few extra dollars that you and the other workers might lose if the doors were cleaned carefully.

A worker whom you give a ride home to every week has just become senior door cleaner. If you could get this worker to do the job right, all the other door cleaners probably would, too. You're in the car right now, and you've decided to ask this door cleaner to take the time to clean the doors properly. **What do you say?**

Role Player B: Coke Oven Door Cleaner

You work in a steel plant on a coke oven battery that is two football fields long and three stories high. The battery "cooks" coal, turning it into coke, which is then used elsewhere in the plant to heat up the steel. You work on the side of the battery where part of your job is to keep the doors clean.

You have just been made the senior door cleaner, a job you've always wanted because it pays well and you need the extra money for your three children, one of whom has a lot of medical bills. However, you don't really like the work you have to do, because cleaning the doors is hard and dirty. You like to get it done as soon as possible.

In addition, the sooner you get the doors cleaned, the more coke can be dumped into the battery and heated into coke. And the more coke you produce, the more you get paid.

You know that when you don't clean the doors thoroughly, some smoke leaks out. When the wind is blowing in a certain direction, the smoke blows up to the people who work on the top of the battery. This bothers you a little, because you know that the workers on top have a very high risk of getting lung cancer because of the smoke that can come out of the top of the battery, as well as the side. But you figure the added smoke from the doors that blows up to the top probably doesn't worry the topside workers—they're more concerned with the smoke coming out of the top of the battery.

You're driving home now with a worker who works on the top of your battery. But the worker seems concerned about something, and you wonder if it's because of the smoke that sometimes blows up to this worker when you don't clean the doors properly. If this worker asks you to clean the doors more carefully, **what will you say?**

ROLE PROFILE SET 3

Role Player A: Worker's Spouse

Your husband (wife) is an accountant with The Finest Accounting Company. He works very hard supporting you and your three children—too hard, in fact. While he doesn't spend too many weekends at the office, he does have to work two or three nights a week, sometimes getting home after midnight.

What is worse, he comes home many evenings very tense and upset because his work is so hectic and high pressured. He's still "on the way up" at Finest Accounting and wants to become a vice-president because of the higher salary, prestige, and job security that position will bring.

On the evenings when he comes home early, he sometimes gets angry at you and is too tired to play with the kids. After dinner he needs to relax, so he watches television and falls asleep. More often, he has some papers to work on and goes upstairs and shuts the study door.

You've told him before that bringing his problems home from work makes life unpleasant when you're together and isn't good for the children either. But now you're ready to put your foot down. Just last night, when you had both planned to go to a movie, he came home and said he couldn't go out because he was "too tired" and had "a few papers to go over." When you complained, he yelled, "What do you expect me to do, quit my job so you can see a lousy movie?"

Today is Saturday, and it's been a pleasant one that you and your children and husband have been able to spend together peacefully at the beach. Even though you don't want to ruin the day, you feel it's a good time to talk about how your husband's exhausting and nerve-wracking work is making things very unhappy for you and the kids.

It's evening and the children are in bed. You're both having coffee in the kitchen. **What do you say?**

Role Player B: Hardworking Accountant

You are an accountant "on the way up" with The Finest Accounting Company. You work very hard at a high-pressure job that is full of excitement—but also full of tension and long hours. However, you feel it's worth the hassles because you enjoy the work and because in three or four years you hope to become a vice-president. Then you'll have a good salary, prestige, and job security.

You are concerned, however, because you sometimes have to work late at night and often come home tired and touchy, even on those evenings when you quit work early. Sometimes you have so much on your mind from work that you hardly feel like talking with your wife or playing with your kids.

Your wife has told you a couple of times about how much your being so tired and nervous bothers her and the kids, but you don't see what you can do about it. You'd be fired if you tried to cut down on your work load. It's just something you'll all have to live with for a few more years until you become vice-president. It's sure no fun for you either to stay late at work and come home grumpy.

Today was Saturday, and you and your family were able to go to the beach and have a pleasant, relaxing day together. Now that it's evening and the kids are in bed, you're having a cup of coffee in the kitchen with your wife before turning in yourselves.

But your wife seems to have something on her mind to discuss. You wonder if it's about your working so hard and coming home tired and tense so often. If this is the problem and your wife wants to discuss it, **what will you say?**

Activity 12

DEBATING RESPONSIBILITY FOR SAFETY AND HEALTH ON THE JOB

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students in small groups debate who should be responsible for health and safety on the job—government, management, employees, or unions.	**Awareness** **Attitude Development**	**Easy**	**1 to 2 Class Periods**

Present verbally or in writing several of the scenarios in Activities 1 and 9 to the class. Have each student write a brief statement of who he or she feels should be responsible for eliminating or reducing the hazard in each scenario. Later, after the class, sort out the students' responses and assign the pupils to small groups in such a way that each group is responsible for addressing one hazard. Include within each group students who disagree as to who should be responsible for eliminating or reducing that hazard.

During the following class, break the students into their small groups, assign each group "its" hazard, pass back their papers, and provide the following instructions:

1. Read the opinions of the other members of your group regarding who should be responsible for eliminating or reducing the hazard your group is assigned to discuss.
2. Appoint a spokesperson to take notes. This person will describe your group's conclusions to the rest of the class when your discussion ends.
3. Discuss *who* should be responsible for eliminating or reducing the occupational safety or health hazard that your group has been assigned to consider.
4. Decide what *share* of the responsibility each of these groups has. All of it? Most of it? Some of it? A small part of it?
5. Be sure to decide *why* you feel that group or those groups should be responsible and write these reasons down.
6. If your group cannot agree on an answer, decide why not and write down why you disagree.
7. Decide what specific *things* each of these groups should be responsible for doing to eliminate or reduce the hazard and write these actions down.

For younger students, you can simplify and reduce these instructions.

When the groups have completed their discussions, have the spokesperson from each group tell the rest of the class what his or her group's hazard was and who the group decided should be responsible for eliminating or reducing that hazard, why, and how. Invite other members of the class to debate each group's conclusions.

Record on the blackboard (a) the name of each student group's hazard and (b) the names of those the students hold responsible for eliminating it. After all the presentations, ask the class to consider whether there tends to be a consensus among all the groups in the class regarding who should be responsible for eliminating or reducing occupational safety and health hazards. Have the class consider whether, in general, government, management, employees, or unions have the most responsibility, what their respective share should be, and what, exactly, they should be responsible for doing about the dangers. Does the class feel that responsibility for hazards should not generally be assigned to one group but that different groups should be responsible, depending on the specific hazard in question? If so, why?

As follow-up activities, students can do the following:

- research who in fact has the legal responsibility for reducing or eliminating each hazard they discussed
- interview members of the responsible group(s), such as government officials, business leaders, union officials, and workers, to see if these people agree or disagree with the students' judgments
- investigate how workers or other citizens can go about encouraging government, management, employees, or unions to take greater responsibility for the safety and health of employed people

Activity 13
ROLE PLAYING CONFLICTS BETWEEN WORKERS AND MANAGEMENT

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students write completions to open-ended story beginnings describing conflicts, over health and safety concerns on the job, between (a) employees and management, (b) employees and government officials, and (c) workers and union officers. Stories are then role played.	Awareness Skill Development Attitude Development	Easy	1 to 2 Class Periods

Employees and employers often disagree about occupational safety and health issues, including the following:

- whether a hazard exists, and, if so, how serious it is
- if one exists, who should be responsible for eliminating or reducing it
- if one exists, whether it is one that can be reduced or eliminated
- how best to eliminate or reduce a hazard in terms of effectiveness and cost

Similar disagreements may occur between union members and union officers in terms of members who wish to "fight it out" with management over a safety or health issue and in terms of whether safety and health conditions on the job should be included in contract negotiations. Finally, workers, union officers, and company executives may all have disputes with government officials regarding what each side feels is the government's responsibility or role in protecting the safety and health of workers on the job.

Three sets of role profiles are provided at the end of this activity that address these areas of potential conflict between workers, management, union officers, and government officials. In the first set, a union official takes a safety complaint to an "Assistant Vice President for Production" in a hypothetical textile company. The second set focuses on a chemical worker who wants his or her union to include safety and health concerns in its upcoming contract negotiations with the chemical company. The final set of role plays presents a conflict between a taxicab driver and an automobile inspection official over the unsafe condition of the driver's taxi.

Before your students role play these scenarios, pass out the parts to the class and have them *write* how they think each conflict situation might end. However, pass out one of the two role profiles in each set to only half the class and the other role profile to the other half so that no one student is privy to both role players' roles in each set of role plays. That way you can still conduct the role plays without the players being familiar with their counterpart's role description.

After the role plays, have the class discuss the following questions:

- What are the potential benefits and drawbacks for workers who advocate improved safety and health conditions with (a) management, (b) union officials, and (c) government officials?
- What considerations might motivate or discourage workers from registering their concerns with each of these groups?
- What strategies for motivating these groups to reduce workplace hazards are most likely to be effective and why?

Complete the activity by having several of your students who hold part-time jobs or who have engaged in summer work describe a safety or health hazard in their work and indicate whether they feel they should present it to their employers. Have the class debate the wisdom and potential effectiveness of doing so. Based on these discussions, small groups of students can develop role plays of their own that other groups can then act out.

The following pages may be duplicated for student use.

ROLE PROFILE SET 1

Role Player A: Union Safety Committee Chairperson

You are your union Safety Committee Chairperson in your textile plant, Topnotch Textiles, and have been elected for a two-year term. You and the other two members of your committee are very concerned about accidents that occasionally happen in using some of the machinery in the plant. Only last week a worker lost an eye when a loose needle from a stitching machine flew out.

The plant supervisor insists that these accidents happen because the workers are careless—they don't watch what they are doing.

You feel the accidents occur mostly because the machines are dangerous to use. As far as carelessness goes, it's very difficult to be attentive every second when you're operating the machines because the work is so boring. Your mind naturally wanders at times, you daydream, or you get distracted by a conversation with someone working next to you.

You've decided to meet with the supervisor to see what can be done to get rid of the danger of flying needles from the machines—either by "retrofitting" them (installing needle guards so they become less dangerous) or getting new machinery that comes with needle guards. You know that there is safer machinery available, but it would cost your employer money to install it.

Another possibility is to introduce job rotation into the work so that you don't get so bored with your job that you lose your concentration. But this, too, will cost the company money. However, you feel strongly that when it comes to the workers' safety, the company must pay the price. You're sure it can afford to, anyway.

You've just gone into the office of the Assistant Vice President for Production. **What do you say?**

ROLE PROFILE SET 1

Role Player B: Assistant Vice President for Production

You are the Assistant Vice President for Production in Topnotch Textiles. One of your duties is to see to it that there are as few accidents as possible on the job. This isn't always easy, because your workers can be careless and get hurt by the machines they operate. Only last week a worker lost an eye when a needle flew out of a stitching machine, and you're sure it's because she was simply careless and didn't tighten the needle properly—at least this is what the foreman told you.

You know that your company could "retrofit" (fix) your machines and install needle guards on them, or you could buy new machines that have needle guards already on them. However, these solutions would cost Topnotch Textiles a fair amount of money. You feel that you can maintain adequate safety through educational programs with the workers every few months and through your training program for new workers. Besides, if the workers make foolish mistakes while they work, that's their fault. It's not your job to hold their hand and treat them like children playing with matches.

The union Safety Committee Chairperson has just come into your office, and you know this person is here because of the accident last week. You figure you'll have to put up some new posters on the need to be careful and perhaps send out another safety notice in the paychecks next month.

The worker has just sat down and will probably want you to install new machines or make the old ones safer. If this is what the worker asks, **what will you say?**

ROLE PROFILE SET 2

Role Player A: Union Member

You work in a chemical factory and do a lot of mixing of gases, some of which you know are very dangerous—they can cause cancer if you are exposed to them too long. For a long time, you and several other workers have asked your company to install fans that would suck out the harmful gases that you may be breathing, but the company has always said that the gases are not dangerous and the fans would be too expensive.

This year you have decided to urge your union leaders to demand at the annual contract negotiations that the company buy the fans. But you know that your union has always been more interested in demanding higher salaries and better medical coverage and retirement policies. Your local union officer, however, is up for reelection next year, and you feel that maybe you can persuade this person to make worker health an important item in this year's contract negotiations with the company.

You have just gotten together with two other workers and decided to present your case to your union officer. You all feel strongly that your health is very important—what good is a high salary if you don't live to spend the money or are too sick to enjoy it? You know that many other workers are concerned about these conditions but have just not bothered to make their feelings well known to the union leaders.

You have just come in to your union officer's office with the other two workers and sat down. **What do you say?**

ROLE PROFILE SET 2

Role Player B: Union Representative

You are the union representative in the local company which makes chemicals. You used to be a chemical worker yourself before you were elected to this position two years ago.

Contract negotiations with the company are coming up soon, and you hope you get a big raise for the workers as well as longer vacation time. You feel the company has made a good profit in the past few years and the workers deserve to share in these profits.

You've heard that some union members are also concerned with their health on the job and want the company to make their working conditions safer. You know that working with chemicals can be dangerous, but it's always been difficult to get the company to improve health conditions on the job. It's much easier to get it to give a raise or improve the vacation plan.

Three members of your union have just come in to your office. You wonder if they are concerned about their health on the job. If they want you to negotiate better health conditions on the job in the coming negotiations for a new contract, **what will you tell them?**

ROLE PROFILE SET 3

Role Player A: Taxicab Driver

You are a taxicab driver, and generally you enjoy your work. However, many of the taxis you drive are very unsafe. Once, your brakes gave out on you in the middle of the road, and another time your windshield wipers quit in the middle of a rainstorm. You don't want to complain to the cab company because you might get fired. So you've decided to speak to the taxicab licensing agency in your town. You know that there are supposed to be inspections of each taxi every year to make sure it's safe to operate, but you feel these inspections are not carefully done. In addition, given the thousands of miles most taxis are driven in a year, they ought to be inspected two or three times a year, not just once.

Last week you skidded in the rain because the tires on your taxi were "bald." So you decided it was time to complain to the inspection agency. You've just walked into the office with another taxi driver who feels the same way you do about the dangerous taxis you drive. **What do you say?**

ROLE PROFILE SET 3

Role Player B: Automobile Inspection Official

You are in charge of the city automobile inspection department. You are responsible not only for the inspection of automobiles every year in your state, but also for the inspection of taxis.

You know that many taxis are not in the best possible condition, but it's really difficult to get the inspectors to inspect them carefully every year. If they were really careful, half the taxis would have to be repaired, and the taxi companies say they would go broke if they had to make these repairs. Besides, you feel the real danger in taxis is not their condition but the way the taxi drivers drive them. Only yesterday you took a taxi to a meeting, and the driver ran a red light, wove in and out of traffic, and broke the speed limit half a dozen times. It's no wonder the taxis are in such lousy shape, the way they're driven.

Two cabbies have just entered your office, and you wonder if they are about to complain that their taxis are unsafe. If they do, **what will you say?**

Activity 14
UNDERSTANDING AND USING OSHA

CAPSULE DESCRIPTION:	GOALS:	LEVEL:	TIME:
Students learn about the Occupational Safety and Health Administration and how to use OSHA.	Awareness Skill Development Attitude Development	Moderate	1 to 2 Class Periods

This activity has two parts. In the first part, students learn about the mandate and operations of the Occupational Safety and Health Administration; in the second, they identify an occupational hazard in their school or community and discuss whether and how OSHA could be used to help eliminate or reduce it.

Part One. Either have your students read a copy of the description of OSHA provided in section B of chapter 3 of this guide, or present to them yourself the basic features of OSHA described there. Focus in particular on the following roles of OSHA:

1. *Standard setting.* The OSHA Act establishes minimum standards for work conditions and includes a "general duty clause," which requires employers to provide a workplace that is free from recognized hazards. The Act also describes how OSHA can establish specific standards covering specific workplace hazards.

2. *Workers' rights.* The Act guarantees a number of worker rights, including the general right to "a safe and healthful work environment." Several specific worker rights are currently being litigated in the courts. For example, in 1978 the Supreme Court held that workers have to be paid during the time they join an OSHA inspector who is touring a plant. The Court also ruled that workers may be fired if they walk off the job or refuse to work because of what they feel is a hazardous condition.

3. *Inspections.* The OSHA Act provides that any worker may request an inspection of his or her workplace by completing a complaint form and mailing it to the nearest OSHA office. A copy of the complaint form is provided in section B of chapter 3 of this guide. The Act also describes how inspections are to be conducted and what their results may be.

4. *Enforcement.* The Act prescribes certain penalties for violations of the Act, including fines and injunctions.

5. *Coverage.* The Act covers most workers, except for government workers at all levels (federal, state, and local) and miners (who are covered under the Mining Safety and Health Act of 1979).

A particularly useful supplement to the OSHA Act is the publication *How to Use OSHA: A Workers' Action Guide to the Occupational Safety and Health Administration,* which may be ordered for $.75 from Urban Planning Aid, Occupational Health and Safety Project, 639 Massachusetts Avenue, Cambridge, MA 02139. In addition, have your students interview OSHA officials who may be located nearby (see chapter 3 for a list of regional and local offices) and write to the nearest OSHA office for literature about OSHA, including the items suggested in section D of chapter 3 of this booklet. A good deal of literature critical of OSHA has also been written, and students can read some of these materials, which are also listed in section D. Students can also interview local business persons regarding their views of OSHA.

After having reviewed and understood the role of OSHA in protecting the safety and health of workers, have the class discuss the following issues:

- How effectively can OSHA protect workers under its present legal mandate? For example, how effective are its enforcement provisions?
- Supposing that OSHA tried its hardest to protect workers, what problems might it have in enforcing the law? For example, in 1978 the Supreme Court ruled that OSHA had to have a search warrant in order to inspect a workplace if the business owner demanded one. Do the students feel most employers will make such a demand? Why or why not?
- Government regulatory agencies have sometimes been accused of being "captives" of the industries they are supposed to regulate because former industry members end up on the regulatory staffs and, more commonly, regulators resign or retire to take positions in the very industries they were formerly required to regulate. How valid is this criticism of OSHA?
- How hampered, if at all, is OSHA by staffing shortages? How many inspections can it be expected to conduct a year?

- How dependent is OSHA for its effectiveness on the character of the person who heads the agency? To what extent can the person in charge promote or frustrate OSHA's mandate if he or she wants to?
- How effective is OSHA's standard-setting process? Is it fast enough?

Part Two. Have your students in small groups identify two or three occupational hazards in their school or community and discuss appropriate methods for eliminating or reducing them. As part of the exercise, require each group to fill out an OSHA complaint form requesting an inspection. Pass out copies of the form to each group by duplicating the blank complaint form provided in section B of chapter 3. After each group has completed its discussion, have the groups compare their proposed actions and evaluate which ones would be best and why. Then, invite a local OSHA official to the class to give his or her opinion regarding the students' proposed courses of action. At the same time, students can ask further questions regarding how to use OSHA to achieve protection of workers' safety and health on the job.

You can also have your class review and fill out a NIOSH form requesting a health hazard evaluation. This form is used when employees are not sure if a substance they work with is dangerous, and they want NIOSH to make this determination. A copy of the NIOSH Request for Health Evaluation may be found in section B of chapter 3.

Activity 15
DEBATING CONTROVERSIAL OCCUPATIONAL SAFETY AND HEALTH ISSUES

CAPSULE DESCRIPTION:	GOAL:	LEVEL:	TIME:
Students debate in small groups one or more controversial issues related to occupational safety and health.	Awareness	Easy to Difficult (Depending on the debate topic)	1 to 4 Class Periods

Following this paragraph is a list of controversial issues related to occupational safety and health that your students can debate in small groups. Different small groups can debate different issues and report their conclusions to the rest of the class, or several small groups can discuss the same issue separately and compare results. After the activity, encourage your students to identify additional controversial issues of their own that they can debate. Students may be able to think of such issues based on their own work experience or that of other members of their family.

- Should OSHA be allowed to inspect a workplace without first securing a search warrant from a judge? (The Supreme Court has ruled that OSHA must secure a warrant if a company demands it. The Court did not, however, require that OSHA specify the particular violation it expects to find–that is, OSHA can still conduct a general inspection without any particular violation in mind, which is something police may not do. A search warrant secured by the police must specify probable cause for finding evidence of a crime; OSHA need not.)
- Should workers be allowed to walk off the job and refuse to work without being fired if they honestly feel that there is a serious risk to their health or safety if they work? (The Supreme Court has held that workers who walk off the job may be fired.)
- When an OSHA inspector arrives at a plant, should a worker delegate be allowed to join the inspector in his or her tour on company time–that is, without losing pay during the inspection? (The Supreme Court has ruled that the OSHA Act does entitle workers to pay while accompanying an inspector.)
- What should a company be fined, if anything, if it violates a minor OSHA rule? A serious one? (The current OSHA Act allows for fines of up to $1,000 for each violation and up to $10,000 in the case of a deliberate or repeated violation.)
- Should a company chief executive be responsible for safety or health hazards that his or her subordinates knew about but failed to correct? If so, what penalties should be assessed against him or her? (Federal District Courts have ruled that company officers are liable for the actions of their subordinates.)
- Does an employer have an obligation to inform a job applicant of all the hazards of the job?
- Should an employer require employees to take appropriate protective measures–for example, wear respirators–that the workers do not want to take?
- Should companies be allowed to prohibit fertile or pregnant women from working with substances which are known to cause miscarriages or birth defects? Should the company be allowed to fire them? Transfer them to lower paying jobs? Not hire them in the first place?
- Should companies be allowed to refuse to reveal the ingredients in their products to the government, which wants to learn if they are dangerous, because of a need to protect trade secrets?
- Should companies be required to pay compensation to workers for illnesses the employees develop because of their jobs when the companies did not know that the work conditions were dangerous?
- Should workers who refuse to take protective measures on the job that are recommended by their employers or the government be disallowed from claiming disability or sickness benefits if they develop a work-related disease or have a work-related accident?
- Should the government or a company inform workers if it learns that a substance that the employees work with on the job has been discovered to cause cancer in animals but not in humans?
- Should companies be allowed to consider how expensive it will be to eliminate workplace hazards in deciding whether to eliminate or reduce the risk? Should the government be allowed to consider the costs to industry in deciding what level of safety companies must achieve?

Activity 16

DEVELOPING HAZARD INSPECTION CHECKLISTS

CAPSULE DESCRIPTION: Students in small groups develop and pilot test a hazard inspection checklist.

GOALS:
Awareness
Skill Development
Hazard Identification

LEVEL:
Easy

TIME:
1 to 2 Class Periods

Explain to your students that the purpose of this activity is to help them (a) become aware of the need to be alert to discover workplace hazards in any job they hold and (b) develop the skills to identify them. Then break the class into small groups and have each group select a workplace for which it would like to develop a hazard checklist. Workplaces might include sites where students themselves have worked, where their parents or other family members work or have worked, workplaces in the community that are known to present possible health or safety hazards, or other workplaces in the local community of particular interest to the students where they can probably gain access for filling out their checklists. Remind the class that public employment is also an appropriate target for their checklists, including government buildings and jobs, from teaching to road maintenance to mail delivery.

In developing their hazard inspection checklists, the groups may wish to do research on the hazards of the occupation or site they expect to address. Students can tour the location and interview workers and company officials. If your students conducted Activity 2, they can review the sample observation guide which was used in that activity prior to developing their checklist for this activity.

When the checklists have been developed, have the groups compare their lists and suggest ways to each other to improve them. The students can also compare their checklists with those developed by others, including the following:

- *7 Steps to Hazard Identification,* by Bob Fowler. Labor Occupational Health Program, Center for Labor Research and Education, Institute of Industrial Relations, University of California, Berkeley, CA 94720. 28 pages. $1.
- *Principles and Practices of Occupational Safety and Health.* See excerpts provided at the end of the activity.

Where possible, the groups should conclude the activity by inspecting a worksite and filling in their checklists. In general, it is wise to secure permission from management before making any such inspection, even in workplaces where students themselves are employed and even in publicly owned buildings. If company officials were consulted earlier in the development of the checklist, securing the company's permission should be facilitated. If any groups are refused permission, they can inquire why permission is being denied and discuss with the rest of the class the stated and other possible reasons they were turned down. If management grants permission, the students may wish to present and discuss the results of their survey to company officials, asking if they agree with the findings and if not, why not. If the officials agree with the findings, what, if anything, do they feel can be done or already is being done about the hazards?

The following pages may be duplicated for student use.

SAFETY AND HEALTH HAZARDS TO LOOK FOR

I. General Questions To Ask

Is there a chance the employee, equipment, or materials can be caught in, on, or between objects?

Is there a danger the employee, equipment, or materials can fall to a lower level?

Can an employee slip, trip, or fall because of materials or objects in his pathway?

Is there a chance of an employee or equipment being struck or striking against some object?

Is the situation such that an employee may hurt himself by pushing, pulling, or lifting?

Is the worker exposed to potentially dangerous flying objects?

Does the employee handle or work near substances that are toxic, caustic, or hot?

Is the air dusty?

Are there fumes, vapors, or mists in the air?

Is the work environment very noisy?

Is the work environment very hot or cold?

Is there a lot of vibration?

Is the lighting adequate?

II. Conditions To Observe

jagged
sharp-edged
crooked
leaking
flammable
decomposed
frayed
deteriorated
corroded
gaseous
toxic
contaminated

III. Possible Items To Inspect

Acids
Aisles
Alarms
Atmosphere
Automobiles
Barrels
Bins
Blinker lights
Boilers
Borers
Buggies
Buildings
Cabinets
Cables
Carboys
Catwalks
Caustics
Chemicals
Claxons
Closets
Connectors
Containers
Controls
Conveyors
Cranes
Crossing lights
Cutters
Docks
Doors
Dusts
Electric motors
Elevators
Explosives
Extinguishers
Flammables
Floors
Fork lifts
Fumes
Gas cylinders
Gas engines
Gases
Hand tools
Hard hats
Hoists
Hoses
Hydrants
Ladders
Lathes
Lights
Mills
Mists
Motorized carts
Piping
Pits
Platforms
Power tools
Presses
Racks
Railroad cars
Ramps
Raw materials
Respirators
Roads
Roofs
Safety devices
Safety glasses
Safety shoes
Scaffolds
Shafts
Shapers
Shelves
Sirens
Slings
Solvents
Sprays
Sprinkler systems
Stairs
Steam engines
Sumps
Switches
Tanks
Trucks
Vats
Walkways
Walls
Warning devices

Adapted from ***Principles and Practices of Occupational Safety and Health, A Programmed Instruction Course.*** U.S. Department of Labor, Occupational Safety and Health Administration, U.S. Government Printing Office, Washington, D.C., n.d.

Activity 17
EXPLORING WOMEN'S SAFETY AND HEALTH ON THE JOB

CAPSULE DESCRIPTION:	**GOALS:**	**LEVEL:**	**TIME:**
Students investigate whether women are exposed to unique occupational hazards and, if so, what these risks may be.	**Awareness Skill Development Hazard Identification Attitude Development**	**Easy to Difficult (Depending on the exercise)**	**1 to 3 Class Periods**

Begin this activity by asking the class a series of "eye opener" questions about women and work such as the following:

- What percentage of women work in America? (50%)
- What percentage of the entire workforce is composed of women? (43%)
- How many children are born every year to women who were employed during pregnancy? (1 million)
- Do most women work because they want to keep busy, want a little extra "pin money," or because they need the money for necessities? (For necessities)

Part One. Small group brainstorming. Then break the class into small groups homogeneously grouped by sex, and ask them to brainstorm what they think some of the health and safety problems are that women may have at the workplace which men do not have. Remind the class to include emotional stress as one possible health hazard. Have the groups appoint a spokesperson to write down what these unique risks are and what causes them. Have each spokesperson present his or her group's conclusions to the rest of the class and record on the blackboard, by sex of group, each group's conclusions. Have the class examine the lists on the blackboard and decide whether the male groups and female groups came up with any different conclusions and, if so, what might account for this phenomenon. Do the explanations indicate anything about differing perceptions among men and women regarding the hazards women face on the job? For example, are men more ignorant of the problems women face than are women?

You can supplement and, if necessary, correct the hazards your students have identified, using the material in section A of chapter 3. Point out that generally there are four major concerns with regard to working women that do not apply to male workers:

1. Women are concentrated in a relatively few occupations, and a few occupations are dominated by women employees. See if your students can guess what these jobs are. The major ones include nurses, electronic workers, secretaries/receptionists, salesclerks, cashiers, elementary school teachers, sewers and stitchers, telephone operators, and laundry workers. Men in these occupations run the same safety and health risks as women—but there are relatively few men in these jobs.

2. Pregnant women run some risks on the job that men and non-pregnant women do not. While any worker might be injured by slipping, falling, or lifting, pregnant women also risk injuring the fetus. The truly unique risks, in fact, are only to the fetus, resulting from the above-mentioned and other hazards. For example, a number of chemicals found in many workplaces can damage the fetus, such as lead, mercury, anesthetic gases, vinyl chloride, chlorinated hydrocarbon pesticides, benzene, and some solvents (chloroform, trichloroethylene). Radiation is also a danger to the unborn child. These chemicals and radiation can cause miscarriages or fetal damage. While it is said that workplace hazards also present women with unique risks because some chemicals may cause genetic damage to the egg or impair fertility, many workplace hazards can have analogous effects on male sperm and a man's potency.

3. Women suffer unique forms of discrimination on the job, which can create stress and physical symptoms. This discrimination may take three forms:

(a) Women tend to be hired for the less desirable jobs. For example, within medicine, men tend to become doctors, while women become nurses and nurse's aides. Women are secretaries; men are computer programmers. As a result, more women than men are exposed to the psychological burdens of holding less desirable jobs.

(b) Many women who advance in their careers are subject to hostility, envy, rejection, sabotage, and patronizing and snide comments from male co-workers. Such attitudes and behavior can create stress for women.

(c) Some women experience sexual harassment from male co-workers, from persistently flirtatious jokes and innuendoes to outright demands for sexual favors in exchange for advancement or retention on the job.

4. Many, perhaps most, women who hold paying jobs are also homemakers who end up working 80 or more hours a week. Such double responsibilities and lengthy work weeks are rare among men. The stresses that such dual responsibilities and long working hours can cause to women are self-evident.

Part Two. Small group research. Break the class into small groups heterogeneously grouped by sex, and instruct them to develop a research plan for investigating in more detail the workplace hazards to women. Examples of activities the groups can engage in include the following:

- Develop a questionnaire and interview one or more of the following groups:
  - –female members of their own families and of the families of friends and neighbors
  - –female classmates who have held or now hold jobs
  - –female teachers, secretaries, and administrators in the school
  - –female school board members
  - –male members of these groups on their perceptions of occupational hazards for women
  - –doctors, nurses, and other medical personnel in the community
  - –local OSHA and NIOSH officials
- Investigate the occupational safety and health hazards of an industry that is heavily dominated by female workers.
- Read one or more of the studies of women and work listed in the Resources section of chapter 3.
- Research the legal issues involved with women in the workplace.

Have the groups report their findings to the rest of the class and compare results. Is there any consistency among the findings? If not, what might account for any discrepancies that turned up?

Part Three. Follow-up discussion. Conclude the activity (whether you used Part Two or not) with a class discussion of the following issues and other controversies that your students may have raised in their prior discussions or discovered in their small group research activities:

- What do the students feel are the distinct hazards of work, if any, that women alone, or primarily, face?
- How can these hazards be eliminated or reduced? If they cannot, why not?
- Should companies take special precautions with regard to women who may have children, may be pregnant, or are pregnant, that are not taken for male employees? Why or why not? If so, what precautions are legitimate and why? For example, should companies be allowed or required to prevent women who are pregnant or still fertile from working at tasks that expose them to substances which may harm an unborn child? Should companies be allowed to fire them? Transfer them to other positions in the company?
- Does focusing attention on the hazards of work for women divert attention from the broader, harder question of providing a safe and healthful workplace for all employed people? For example, is it legitimate to focus on the effects of work on the fertility of women but not on the potency of men?
- Should women who know they are pregnant and who are informed of the risks to their unborn children of a particular job be allowed to make up their own minds about whether to take the job? If not, who should make that decision?

Activity 18
INVESTIGATING WORK STRESS

CAPSULE DESCRIPTION: Students investigate the role of stress in emotional and physical health and examine the workplace as one source of stress.	**GOAL:** Awareness	**LEVEL:** Easy	**TIME:** 1 to 2 Class Periods

The concept of the workplace as a potential source of stress, with stress as a potential cause of emotional and physical damage, has been woven into several of the other activities in this guide. However, because occupational stress is so prevalent, has such important health consequences for many people, and is often ignored in considerations of workplace hazards, it is important that the topic be singled out for exclusive attention.

Begin this activity by passing out or reading aloud the following scenarios:

(a) Juan Rivaldo works on an automobile assembly line installing tail lights on automobiles. The line of cars keeps moving all day, and he has to ask permission whenever he wants to use the bathroom. He gets 45 minutes off for lunch and a 10-minute break in the morning and another one in the afternoon. What kinds of feelings might Juan's job cause him to feel? Why?

(b) Sharon Antopolous has just been promoted to chief of surgery in the hospital where she works. She is married and has two children, aged eleven and fourteen. What kinds of problems might her new position create for her? Why? What kinds of benefits might it have? Why?

(c) Darroll Washington is a police officer in the city. He works the evening shift from five to midnight. His sector is a tough one to patrol, and sometimes it involves him in plenty of "action." Other times, he spends hours just driving around doing nothing. What kinds of feelings might Darroll's job cause him to experience? Why?

In small groups or as a class have your students answer the questions raised. Then conduct a brief discussion on the definition of stress, referring back to the students' responses to the scenarios for illustrations of stresses and their possible effects on workers. One definition of stress might be features of the environment that can create emotional discomfort for people—that is, make them feel unhappy, nervous, bored, tense, angry, and so on. Not all stress bothers all people, and different people can tolerate or "handle" stress better than others. Some people enjoy stress, too. All stress, however, has the potential to affect people's emotional well-being.

Referring back again to the students' responses to the scenarios, have the class compile a list of the possible job conditions that might be considered stressful, such as the following:

boredom
speed
noise
pace
overwork
excessive responsibility
unclear job responsibilities
role conflict
pay or job status inequities
inadequate resources
job insecurity
physical danger
repulsive assignments
sex or race harassment
long hours

Then ask the students to suggest what feelings these job conditions or stressful situations might create for workers, such as:

anger
tension
fear
frustration
hatred
jealousy
depression
neglect
loneliness
boredom

Have the class suggest some occupations that might involve these stresses and cause these feelings in addition to those of assembly line worker, chief surgeon, and police officer illustrated in the original scenarios.

Ask the class what might serve to reduce the effects of these stresses on a worker, such as support from supervisors and co-workers, certain personality traits (which ones?), and understanding spouses and other family members. To what extent might people turn to alcohol and drug abuse, and even suicide, as "solutions" to stress?

Next, point out, if the fact has not already been mentioned, that stress can lead to physical ailments, like ulcers. Before going into more detail on what illnesses stress can create, have your students describe several conclusions to the following story beginnings.

(d) Louise Vitti had a big date coming up that evening. She wanted very badly to make a good impression on the boy she was going to see because she knew he had several other girls whom he could be dating and she wanted him to like her. He was the first real decent guy who had taken an interest in her in a long time, and she didn't want to muff this chance to get to know him better. She knew she shouldn't worry so much about the date, but she was so nervous that . . .

> *Fill in the rest of the story with three possible things that might have happened to Louise physically because of her nervousness.*

(e) Sam Cohen was told by the coach yesterday that the regular pitcher for the varsity team had sprained his ankle and wouldn't be able to pitch the final playoff game of the year. Sam would be doing the pitching. While thrilled at the chance to show his stuff—he hadn't had a chance to pitch all season, the regular pitcher was so good—he was also very nervous. He was only a junior and knew that if he did poorly, he wouldn't be given the starting pitching assignment his senior year. In addition, he was certain that several minor league scouts would be on hand to assess the local talent. He knew he shouldn't worry, even though his shoulder had been giving him a little trouble recently, but he couldn't help it. In fact, he was so tense that . . .

> *Finish the story with three possible physical reactions Sam might have had as a result of his nervousness.*

Record on the blackboard all the physical symptoms and illnesses a worker might have as a result of stress on the job, such as sweating, dizziness, fainting, sleepiness, insomnia, exhaustion, weight loss, stomach upset, ulcers, headaches, tics, hives, high blood pressure, backaches, and stiff neck.

Conclude the class discussion part of the activity by having the students consider what some of the benefits of stress on the job, or in other areas of a person's life, might be. For example, it has been suggested that absence of stress may be a stress itself for some people. Stress can also provide relief from boredom and for others an opportunity to avoid facing an inner conflict troubling them (not necessarily a healthy way to solve a problem).

As follow-up exercises to this activity, students can interview various employed people asking specific questions about:

1. what stresses, if any, exist in their work;
2. what emotional effects, if any, these stresses have on them or their co-workers—that is, what feelings these stresses create;
3. what physical effects these stresses may have created in them or their co-workers; and
4. how they and their co-workers try to reduce the stresses of their work.

There are also a number of interesting novels, short stories, and poems that students can read which suggest some of the stresses of various occupations, including the following:

Novels

To Kill a Mockingbird, by Harper Lee (lawyer)
The Assistant, by Bernard Malamud (shopkeeper, store clerk)
To Sir With Love, by E. R. Braithwaite (teacher, principal)
The Pawnbroker, by Edward Wallant (shopkeeper)
One Flew Over the Cuckoo's Nest, by Ken Kesey (nurse, nurse's aide)
I Never Promised You a Rose Garden, by Hannah Green (psychiatrist, nurse's aide)

Short Stories

"Flowers for Algernon," by Daniel Keyes (doctors and nurses)
"The Egg," by Sherwood Anderson (small restaurant owner)
"The Far and the Near," by Thomas Wolfe (railroad engineer)
"A Visit of Charity," by Eudora Welty (nursing home staff)
"The Patented Gate and the Mean Hamburger," by Robert Penn Warren (diner operator)

Play

Death of a Salesman, by Arthur Miller

Poems

"A Civil Servant," by Robert Graves
"Dolor," by Theodore Roethke (office worker)
"Night Shift," by Sylvia Plath (factory worker)
"The Gresford Disaster," anonymous (miners)
"What Is He?" by D. H. Lawrence (cabinet maker)
"Buyers and Sellers," by Carl Sandburg (laborers)
"A politician is an arse upon," by e. e. cummings
"Jazz Fantasia," by Carl Sandburg (jazz musician)

Teaching Assistance

OVERVIEW OF THE OCCUPATIONAL SAFETY AND HEALTH PROBLEM

OCCUPATIONAL HEALTH

The information below presents some of the major health issues related to employment.* Additional information may be found in the bibliography provided at the end of this chapter.

Chronic Diseases

The National Cancer Institute estimates that 60 to 90 percent of all cancers may be due to environmental factors and considers that direct industrial exposure to known carcinogens accounts for 4 to 10 percent of environmentally induced cancers. Another source reckons that 10 percent of all cancer deaths in men are attributable to workplace carcinogens.

The first direct connection between an occupational exposure and risk of a specific cancer was discovered in 1775 by Percival Pott when he noted the high incidence of scrotal cancer in former chimney sweeps who, as young boys, had been exposed to soot and failed to clean themselves off after work. Abnormally high rates of cancer have since been documented in connection with coke oven work; rubber manufacturing; copper mining and smelting; exposure to asbestos during insulation, construction, shipbuilding, roofing, and other jobs; painting and paint manufacturing; uranium mining; manufacture of dyes and vinyl chloride; dressing of lumber; and work involving excessive exposure to the sun.

Over six million workers are exposed to *known* carcinogens–and additional cancer-causing substances are continually being discovered among the thousands of substances in current use in industry and among the estimated 500 new chemicals introduced into the workplace every year.

Many jobs appear to create or heighten emotional tension in normal as well as susceptible individuals; stress, in turn, has been linked with hypertension or heart disease among university professors, tax accountants, NASA engineers and scientists, executives, air traffic controllers, and employees in a number of blue collar and other white collar jobs. Job dissatisfaction has been linked in several studies with mortality from heart disease. Occupational stress has also been related to the incidence of arthritis and peptic ulcers. The several million shift workers in the nation, whether due to stress or biochemical changes stemming from interruptions in their daily rhythms, have an excess of gastrointestinal disturbances and urinary tract conditions.

A particularly insidious group of chronic diseases associated almost exclusively with on-the-job exposures is the many pneumoconioses, which can cause shortness of breath, coughing, chest pain, chronic bronchitis, emphysema, increased susceptibility to respiratory infections, and death. Victims may have to keep a "breathing machine" at home, be hospitalized whenever they get a cold, and spend a good portion of their income on medication. As one miner described it, "You smother continually, twenty-four hours a day, seven days a week. But there's times when you smother worse . . . . There's nothing I can take that gives me any ease–just stop, sit, lay down, if I can, or just be still." Black lung, which is prevalent among 8 to 12 percent of all coal miners in the United States, is the most well known of the pneumoconioses. Indeed, as early as 1556 Agricola remarked that some women in the Carpathian Mountains married as many as seven miners in succession as each miner in turn died from lung disease. An estimated 20 to 30 percent of all

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*Adapted from Peter Finn, "Integrating Occupational Health and Safety into the Health Education Classroom," *Health Education Monographs*, Fall 1978.

cotton, flax, and hemp workers develop byssinosis, while workers who breathe asbestos particles run an extremely high risk of contracting asbestosis. Silicosis, however, to which sandstone workers, coal miners, and foundry and pottery factory workers are exposed, is the most widespread of the dust diseases.

Given that heart disease and cancer are the number one and two causes of death in the country, that the prevalence of arthritis and peptic ulcers is widespread, and that the major pneumoconioses are incurable, students should become well versed in the contributory role their future employment may play in the onset and intensification of these chronic diseases.

Skin

It has been claimed that "anyone who works is a potential candidate for an occupational skin disease" (Birmingham, D. J. "Occupational Dermatoses; Their Recognition, Control, and Prevention." In *The Industrial Environment: Its Evaluation and Control,* U. S. Dept. of Health, Education, and Welfare, p. 503. Washington, D. C.: Government Printing Office, 1973). Dermatoses are the most commonly reported occupational illnesses—it has been estimated that 10 percent of the workforce contracts a job-related skin disease during the course of a year. These problems can range from minor, self-limiting rashes to skin cancer.

Employment conditions that regularly create cutaneous hazards include outdoor work (like farming and fishing), handling of irritating chemicals, laboring under temperature extremes (for example, in forestry, fire fighting, construction, mail delivery), use of high-frequency tools, and the presence of bacteria, viruses, and fungi (as in baking, horticulture, nursing, animal husbandry). In addition, jobs that create stress can aggravate almost any existing skin condition, from acne to psoriasis.

Hearing

Impaired hearing may be the single most widespread occupational hazard. Over 4 million workers are actively exposed to continuous noise, while another 3.3 million are at risk of excessive noise exposure. The hearing sensitivity of factory workers in heavy industry is known to be measurably poorer than that of the general population.

Not only can excessive noise over time permanently impair hearing ability, it can also cause changes in the size of blood vessels, restricting the flow of blood and making the heart work faster. Noise produces neurological, endocrine, and biochemical changes in man, and in scientific experiments with animals has led to heart disease, hypertension, gastrointestinal ailments, sterility, and tissue damage of the kidneys and liver. A recent study revealed that women living in the landing path of airplanes near the Los Angeles airport have a higher than average rate of stillbirths, and noise may be the culprit. The role of noise in creating tension is well known. Fully 40 percent of the members of teachers' unions in Sweden report being disturbed by noise at work.

Noise can also create a safety hazard on the job by interfering with communication between workers.

A key distinction between noise on the job and off the job, which students should understand, is that people can and usually do avoid disquieting and potentially harmful noises in their private lives, but they cannot always do so at the workplace. However, youngsters also need to recognize that noise does not have to be painful to cause hearing loss. Education should make students sensitive to the need for identifying potential noise hazards where they work and for learning about protective measures they can take to prevent them.

Body Positions

The effects of awkward and prolonged body positions, heavy lifting, and sedentary conditions at the workplace can create a variety of physical and emotional problems for employed people. Uncomfortable and unnatural body positions and motions can cause stress, fatigue, unnecessary errors, and accidents, as well as back problems and muscle strains. Knowing how to lift objects properly is especially important in occupations where such activity occurs frequently. While students may find this warning obvious for jobs requiring heavy manual labor, they may not realize that other common jobs require strenuous physical exertion. Thirteen percent of the respondents in a Swedish study of *white* collar workers reported engaging in heavy lifting as part of their jobs. Laundry workers, hospital employees, and postal employees frequently risk strains, sprains, dislocations, and hernias from lifting laundry, patients, and mail. Such injuries account for 40 percent of all lost-time accidents to California laundry workers, while a medical center in San Francisco found that nearly one-half of its Workers' Compensation costs were for back injuries.

Jobs that require considerable standing or sitting may involve not only continuous discomfort but also serious health hazards. Elevator operators, beauticians, dental assistants, and salespersons are all more prone to varicose veins as a result of their constant standing than are people with sedentary or active jobs. Nurses appear to be more susceptible to blood clots in their legs than are other employees, presumably because they are on their feet for long periods of time. Clerical workers and taxi and truck drivers, by contrast, because of their constant sitting position, are exposed to increased risks of blood pooling and therefore hemorrhoids. Curiously, some flight attendants who spend little time standing still or sitting down experience severe leg and back pains from constantly walking uphill and downhill.

Students need to learn that good posture and comfortable body positions are an important consideration on the job and that they may need to exercise more frequently than other people if they are employed in an occupation in which unusual physical activity or inactivity can create special problems like varicose veins, hemorrhoids, and muscle pulls.

Human Sexuality

A variety of jobs appear to affect workers' potency and ability to conceive, as well as cause birth defects, increased infant mortality, miscarriages, and a number of other reproductive problems. Already, 181 substances, including arsenic, cadmium, and methyl mercury, have been shown to be teratogenic (causing birth defects) or mutagenic (changing the cell structure of exposed adults or fetuses) in animals or humans. Rats exposed to vinyl chloride, used extensively in the manufacture of plastics and other products, have given birth to offspring afflicted with live tumors. Children of surgical nurses are more likely to be born with congenital deformities than are those of other nurses, while surgical nurses have ten times the miscarriage rate of other nurses.

Lead, to which nearly 1.5 million workers are exposed, has proven to be a Pandora's box of baneful influences, with the potential to cause birth defects, sterility, spontaneous abortions, stillbirths, increased infant mortality, and increased prematurity. Lead's ability to cause miscarriages is so well known that it has been used by some women as an abortion method. Awareness of lead's toxicity has existed for at least 2,000 years: Pliny the Elder warned against its dangers in the first century A.D., and some historians have suspected that excess exposure to this metal may have contributed to the fall of the Roman Empire. Discovery of lead's harmful effects on human reproductive capacity has led one company, General Motors of Canada, to prohibit women of childbearing capacity from work where there is exposure to lead–with the bizarre result that one employee had herself sterilized rather than become unemployed.

The reproductive ability of male workers is also endangered by certain workplace conditions. Lead has been implicated in abnormal spermatogenesis, while vinyl chloride may damage sperm cells and produce cancer at a very early age in the offspring of men who come into contact with this chemical. Exposure to radar among men, such as may occur in military and health care work, is associated with mongolism in their offspring; and an increased risk of birth defects has also appeared among children of unexposed wives of physician anesthetists. Wives of vinyl chloride workers have more miscarriages than women whose husbands were not exposed to this chemical.

Youngsters need to be aware that pregnant women workers are more subject to workplace hazards than are men or other women. They have an increased susceptibility to toxic effects of gases, dusts, chemicals, metals, and stress.

When students who intend to have children find themselves employed later in life, they should investigate their job's potential for endangering their reproductive capacity and the health of their future offspring. If necessary, they should consider transferring to another job or stopping work if they conclude that the risks are grave enough.

Family Health

Unsuspected evidence has surfaced in recent years that employed people can expose other members of their families to hazardous substances from the workplace.

People who work with asbestos, including insulators, shipbuilders, construction workers, and roofers, can inadvertently bring invisible and potentially lethal fibers of asbestos home on their clothing or on their bodies, particles that other members of their family may then inhale. Several people who have lived in the same house with asbestos workers have developed mesothelioma, an extremely rare and incurable form of cancer. One mesothelioma victim included the 40-year-old son of a man who had ended his 3 years of work in an asbestos plant when the son was 11 years old. Asbestos dust has been found in the households of some former asbestos factory workers 20 years after the plant had closed. Some children of lead workers have had to be hospitalized because of unusually high concentrations of lead in their blood. As we saw earlier, husbands exposed to several dangerous conditions and substances, including vinyl chloride, radar, and operating room gases, pose a danger of miscarriages to their wives or birth defects to their future children.

In some industries, workers breathe, handle, or ingest chemicals, such as mercury, carbon disulfide, and trichloroethylene, which can impair their emotional stability so severely (see Mental Health below) that their family life is seriously disrupted. These and other chemicals, for example, have been known to cause extreme irritability and uncontrollable crying. People who work with selenium or tellurium can become family and social outcasts because they develop such an offensive and nonremovable odor of garlic on their breath and in their body sweat that in some cases their wives will not even kiss them. While these substances may sound exotic to many people, over one million workers are exposed to carbon disulfide and three and a half million to trichloroethylene.

Working conditions that include persistent noise, unrelieved or extreme tension, mandatory and exhausting overtime, and shift work can affect quality of family life when they prevent a worker at the end of the day from functioning properly as a spouse or parent. Furthermore, when an employed person must stay home to recuperate from an occupational disease or accident, stress can build up as the husband, wife, and children have to spend too much of each day in constant contact with one another. In reverse fashion, however, emotional support from family members for spouses employed in high-risk jobs appears to reduce workers' susceptibility to job-related illnesses and tension.

In light of these potential effects occupational illnesses and injuries may have on a family's physical and emotional health, students should be encouraged to remember when they get married to urge their employed spouses to take appropriate health and safety precautions at work in order to preserve harmony and health in the entire family.

Mental Health

When we consider that a majority of Americans (including homemakers) spend nearly one-half of their waking hours on the job, students should thoroughly investigate the profound influence work may have on the emotional life of employed people.

At the most basic level, "A man's work does not satisfy his material needs alone. In a very deep sense, it gives him a measure of his sanity" (Elliot, J. *Equitable Payment: A General Theory of Work, Differential Payment and Individual Progress.* Carbondale: Southern Illinois University Press, 1961). As a result, work that is experienced as meaningless, demeaning, or frustrating may affect a person's self-concept to the point of causing depression, hostility, or tension. Job insecurity, physical danger, boredom, excessive responsibility, and a variety of other specific working conditions found in many occupations have been linked with mental illness and alcohol and drug abuse. Work stress has been associated in particular with overpromotion, underwork, ambiguous job definitions, lack of effective consultation and communication, and absence of financial security, but workers' perceptions of the harmful nature of their working environment may in many cases have more impact on their health than any actual, objective stress. Changes in general in a person's working conditions, such as troubles with a supervisor, alterations in working hours, promotions, and major business readjustments (e.g., merger, reorganization), regardless of their ostensibly beneficial or harmful nature, when combined with other life changes, have been correlated with increased illness.

Stressful working conditions and their effects on employee health have received considerable attention in the past few years. While the prevalence of "executive stress" is often cited, assembly-line workers in one study of 23 white and blue collar occupations had the highest stress of all. One factory worker reported that she is always "pushing, pushing, pushing all the time . . . . The biggest part of the women takes nerve pills. I'm on them myself. You just get so nervous, pushing all day." A study of admission records of community mental health centers in Tennessee revealed that among the 22 occupational groups with the highest incidence of emotional disorders, six job categories were related to hospital and health care operations. While several factors may account for this finding, one possible explanation is that the responsibility for taking care of sick people subjects health professionals to considerable stress.

While some students may already be familiar with the stressful effects of these and other tension-filled or tedious jobs, few know about or have really reflected upon the potential psychological impact of most other jobs, such as the high suicide rate among dentists, police officers, and women physicians and chemists, or the excessive rates of alcoholism among waiters, longshoremen, transportation laborers, and painters. One wonders how many youngsters are aware of the considerable tension their own teachers experience in the school environment.

Few people also consider that women (or men) who have dual obligations as homemakers and wage earners suffer the emotional consequences of an up to 80-hour work week. A "weekend stress syndrome" among some working housewives is characterized by tension and irritability every Friday and Saturday stemming from the women's knowledge and resentment that during the upcoming weekend they will have to catch up on all the housework they put off during the week because of outside jobs. House-bound homemakers are often subject to feelings of boredom, frustration, neglect, and isolation because the work may be repetitive, never-ending, and unappreciated. On the other hand, many employed women are subjected to upsetting forms of sexual attention on the job, from suggestive comments to near rape.

Finally, not only can job-related stress undermine peace of mind for the worker and his or her family, it can also impair employee safety by hindering the ability to concentrate on potentially dangerous tasks.

Students need to become familiar with these potential effects of occupational stress on employee mental health and safety and realize that work can present stimuli, temptations, and opportunities that can create or worsen emotional problems in both susceptible and normal individuals. Such factors should be considered carefully when youngsters choose a career or a job so they can avoid entering occupations that may unduly heighten any harmful predispositions they know they have or that present stresses that they realize will be intolerable for them.

Students must also learn that certain chemicals found in the workplace may affect the emotional stability of exposed employees. Mercury poisoning can cause ungovernable blushing, crying, and feelings of extreme annoyance. One worker affected in this manner recalled, "I wanted to be left out of social activities. I was very irritable toward people. I tried to break up friendships." The fictitious Mad Hatter in *Alice in Wonderland* is based on fact: European hatters regularly inhaling mercuric nitrate used in the felting of fur for hats suffered from chronic mercury poisoning, which creates a number of mental disorders, including pathological shyness–hence the expression, "mad as a hatter." Lead poisoning can produce increased hostility and aggressiveness; carbon disulfide inhalation has been the cause of suicide; chronic manganese intoxication leads to hysterical laughter and euphoria; and exposure to organic solvents may lead to neurasthenia. Curiously, lithium is one chemical that in carefully prescribed doses has beneficial effects on the emotions: it relieves some manic depressives of their extreme highs and lows.

Awareness of how several chemicals used in a number of jobs may precipitate emotional upset can help students when they are employed to consider whether any materials where they work may be a contributing factor in the development of any unusual emotions they experience for which no other explanation is evident–and suggest this cause to their family physicians.

Mood Modifiers

A number of occupational health and safety considerations relate to the use and abuse of nicotine, alcohol, and other drugs both on and off the job.

An estimated 3 to 4 percent of the work force is composed of problem drinkers, not including some workers in heavy industry who drink large quantities of alcohol during lunch to enable them to withstand the pressure or overwhelming boredom of their tasks, or blue and white collar workers who may drink more off the job than they otherwise would because of stressful working conditions. Furthermore, as noted earlier, several occupations either attract people prone to alcohol problems or precipitate abusive drinking in otherwise healthy individuals. However, many inveterate alcohol and drug abusers do not present an increased risk of accidents on the job, in part because they compensate for their impairment by working more slowly, avoiding dangerous tasks, or not coming to work when they know they are impaired. On the other hand, problem drinkers and drug abusers in the early stages of their abuse do experience increased rates of accidents. In addition, in certain occupations alcohol and drug abuse present clear hazards for neophytes and experienced abusers. Long-distance truck drivers who use amphetamines to stay awake run a serious risk of crashing when the drugs wear off, while many professional athletes persistently endanger their safety by taking drugs to kill pain from injuries or improve playing performance. Even many over-the-counter drugs and prescription medications, from antihistamines to meprobamate, can depress mental abilities and lead to accidents in jobs where mental and physical alertness are required.

Work that allows or impels people to misuse drugs may, of course, lead to serious health consequences for the abuser regardless of whether there is an increased risk of accidents on the job. Occasionally, indeed, exposure to a chemical on the job and one at home can combine to have harmful effects. The estimated two million workers in over two dozen industries who are exposed to carbon tetrachloride are endangered by drinking beverage alcohol at home because the chemical impairs the liver's ability to oxidize the drug.

Students can become familiar with the concepts of synergy and potentiation by studying the reactions of cigarette smoke to certain carcinogens found at the workplace. Asbestos workers who smoke, for example, run a 92 times greater risk of developing lung cancer than do other asbestos workers. As a result, the major manufacturer of asbestos in North America has recently refused to hire smokers. Cigarette smoking also appears to be a contributing factor in the development of lung cancer among uranium miners and possibly chromate workers.

Physical Environment

The striking effects of some workplace pollutants on local communities make it imperative that attention be drawn to this aspect of the world of work. While several tragedies like the Minamata methyl mercury and polybrominated biphenyl (PBB) poisonings have received extensive publicity, subtler effects on health stemming from industrial sources may prove more damaging in the long run and to more people. For example, children living near copper smelters have unusually high levels of arsenic in their hair and urine, while adults in the community have elevated levels of cancer of the bronchus and lung. Heptachlor, a halogenated hydrocarbon insecticide, which is a suspected carcinogen, has been detected as residues in the organs of stillborn infants, human milk, and human fetuses. This form of environmental health hazard is not limited to the immediate vicinity of the chemical's source. When the Environmental Protection Agency tagged chlordane isotopes and spread them for agricultural purposes in Dallas, the pesticide was detected as far away as Cincinnati in that city's water supply. Residents in asbestos factory towns have developed mesothelioma. Abnormally high rates of birth defects and cases of angiosarcoma, a rare liver cancer, have been reported in communities with vinyl chloride plants.

As concerned citizens, students should become aware of how the risks to their health arising from environmental sources include not only radiation hazards, automobile pollution, tobacco smoke, and diet, but also toxic and carcinogenic substances emitted by a variety of industries. Such industrial poisons not only endanger "innocent bystanders," they place some workers in double jeopardy—both on the job and in their private lives.

OCCUPATIONAL SAFETY

What follows is a brief discussion of the major safety issues related to work. Additional information may be found in the bibliography provided at the end of this chapter.

Definition, Prevalence, and Nature

Occupational safety, as opposed to health, normally involves harm that occurs immediately (for example, a slip or a fall), is often violent in nature (for example, an explosion), and frequently is associated with equipment (for example, a tractor tipping over). Concerns with occupational safety focus primarily on the period of time an employee is actually working on the job, whereas in occupational health the concern includes the effects of the workplace after employees have left the job site at the end of the shift or even after retirement. However, there is some overlap between occupational safety and health. For example, some chemicals can cause an explosion at the work site while other, similar substances can induce physical illnesses that may not appear until several days or even years after exposure on the job has occurred. Noise is sometimes considered a safety hazard and at other times a health hazard.

A staggering number of work-related injuries and accidents take place in the United States. Approximately 50,000 employed people are killed in accidents connected with work every year, and over two million work-related disabling injuries are reported annually. As many as 25 million additional serious injuries and deaths on the job may go uncounted each year. Nearly three out of every ten injuries involving lost workdays keep workers off the job for 15 or more days. In any given year, the total work time lost is equal to the shutdown of businesses with a total of one million workers for an entire year—as if all the employed people in a city the size of Philadelphia or Houston did not work all this year.

What safety hazards appear to cause all these accidents? The major factors associated with injuries on the job are the following:

- electrical hazards
- falls, slips, and trips
- fires and explosions
- collapses and cave-ins
- dangerous machinery
- vibration
- lifting and other forms of physical exertion

Certain occupational clusters—including construction, transportation, and farming—have particularly high rates of job-related injuries. Some specific occupations—including fire fighting, mining, longshoring, working with meat and meat products, and handling lumber and wood products—are also known for their high rates of accidents.

According to figures compiled by the National Safety Council for 1975, 27 percent of all injuries occurred to the trunk, 16 percent to fingers, 13 percent to legs, 9 percent to arms, 6 percent each to eyes, head, hands, and feet, 3 percent to toes, and 8 percent to the entire body (for example, in electrocutions). Sprains, strains, hernias, and dislocations appear to be the most common types of injuries reported. Injuries to different parts of the body also seem to be more prevalent in some occupations than in others. For example, eye injuries are twice as common in mining, construction, manufacturing, and transportation fields as in trade, service, and government work. Head, face, and neck injuries occur most often in transportation-related jobs, while injuries to the trunk are most common in government work. Interestingly, in manufacturing occupations injuries to arms (including hands) are most frequent, while leg injuries are least prevalent.

Causes of Accidents and Injuries

Assigning responsibility for accidents and injuries on the job may sound like a simple matter—for example, blaming them on worker carelessness or faulty equipment. However, identifying what lies *behind* a worker's apparent carelessness or the failure of a machine to operate properly can be a complex matter. For example, the carelessness may have resulted from fatigue, or it may reflect something done in haste to secure a production bonus. Faulty equipment may have originated with the manufacturer, or it may have stemmed from management's failure to subject it to regular maintenance. Furthermore, a workplace accident may have multiple causes: the combination of both worker carelessness and also a malfunctioning machine may in many instances be necessary for an injury to occur.

While it is not always possible to attribute a given accident to a single specific cause, a number of factors often playing a role in many injuries have been consistently identified including the following:

1. **Equipment failure.** Machinery can break down due to age, lack of maintenance, faulty construction, or improper use. The truck driver who finds his or her brakes give way on a steep hill could attribute the failure to any one of these problems.

2. **Equipment design.** Machinery may be designed in such a way that it causes or facilitates accidents because it fails to accommodate the limitations of the human mind or body. Automobile accidents have resulted when drivers inadvertently shut off their headlights while attempting to operate the cigarette lighter. Pilots have confused the knobs operating the flaps of their aircraft with those controlling the wheels due, in part, to the knobs' close proximity. Guardrails may fail to prevent falls if they are constructed from inappropriate (for example, slippery or weak) materials or have not been designed to take into account the height and weight of the average worker.

3. **Work procedures.** The sequencing of tasks or the speed at which they must be performed may cause accidents. Police patrol officers who race to the scene of a reported crime while they attempt to talk over their two-way radios may find their ability to concentrate on either task is impaired. The single most common cause of fatalities to police officers on the job is, in fact, automobile accidents.

4. **Inexperience.** Newness on the job is frequently associated with accidents. More experienced workers usually have lower injury rates than do novices, particularly when it comes to operating equipment and machines.

5. **Aging.** In contrast to younger workers, older workers sometimes have impaired reflexes; they tend to be involved disproportionately in accidents resulting in falls or being struck by objects. Thus, the "safest" worker may be an experienced younger person and the most "dangerous" an inexperienced older person.

6. **Stress.** Another condition that may lead to injuries is stress. The employee who is anxious about being laid off from work, who is the subject of racial or sex discrimination on the job, or who is experiencing a troubled marriage may find his or her ability to work safely seriously impaired.

7. **Worker carelessness.** Sometimes, simple carelessness is responsible for an accident, as when a worker ignores a prohibition against smoking or casually discards a lighted cigarette or match near flammable material. However, worker "carelessness" can also reflect the inability of the average human being to focus his or her attention as fixedly as required on doing a task safely. Problems of attention span, boredom, and fatigue can be involved. Some workers, for instance, can tolerate boring jobs like assembly-line work only if they daydream; accidents can be the result. On other occasions, haste can be the culprit, as when workers are given bonuses for extra production and have an incentive to work quickly, or they hurry to complete a task before the end of the work shift.

8. **Accident proneness.** There is disagreement on whether some individuals are by force of personality or physiological characteristics more likely to get into accidents than others. Such alleged accident "susceptibility" has been variously attributed to excitability of temperament, sluggishness, psychomotor retardation, and a number of other causes. Some observers feel the concept is a myth. What can be said with certainty is that every person has spells when he or she is more likely to have an accident than at other times. These occasions may be associated with any number of emotional states, from anger to euphoria, and result from a variety of physical conditions, from exhaustion to alcohol abuse.

The above factors involved in workplace accidents can be divided into two general categories: those that involve unsafe *acts* performed by workers and those that are associated with unsafe work *conditions.* The factors in the former category (actions) appear to place the blame on the workers, while the factors in the latter category (work conditions) seem to implicate the company. As a result, workers and unions have tended to attribute accidents to unsafe conditions at the workplace that, they allege, management has failed to correct and for which, therefore, management is responsible. Conversely, company executives and supervisors are inclined to blame injuries in their establishments on workers' failure to exercise proper caution or follow established safety rules. This dispute has yet to be resolved. A study conducted for the Ford Foundation suggests, however, that no more than one-third of accidental injuries or deaths can be traced to unsafe acts and at least two-thirds can be attributed to unsafe conditions.

In this connection, it is important to note that the Occupational Safety and Health Act places the responsibility on the employer to provide a workplace free from hazards (see the following section of chapter 3). It is also well to realize that workers themselves can create or fail to remedy conditions on the job that increase their chances of having an accident (see Following Good Housekeeping Practices below).

Accident and Injury Prevention

Just as there is no consensus on the most frequent causes of accidents on the job, so there is no agreement on how they can best be prevented. Here again, the lines of disagreement tend to be drawn between workers and unions on the one hand, and management on the other. Nonetheless, eight categories of preventive measures that will reduce the likelihood of accidents and injuries on the job can be specified.

1. **Modify or replace equipment.** Obviously, the ideal solution to workplace accidents is to provide conditions in which accidents are impossible. Equally clearly, this goal is frequently impractical because of engineering limitations—equipment cannot always be designed to be completely immune to operator misuse or error—and because of cost considerations.

Still, there are often opportunities for employers to modify or replace equipment and machinery so as to minimize the opportunity for accidents. Manufacturers can also build equipment and machinery safer than that currently in operation. For example, vehicles used in construction now emit a beeping sound whenever the driver shifts into reverse; this warns other workers whom the driver may have difficulty seeing that the vehicle is approaching. Machinery can be designed so that when the operator removes his or her hand or foot from the source of operation, the machine automatically stops—the so-called "dead man's switch." This prevents workers from attempting to unjam or unclog the machine while dangerous parts are still in motion.

Workers, too, must sometimes share the responsibility for hazardous equipment when they fail to follow proper maintenance procedures or ignore a defect in order not to slow down or stop production and jeopardize incentive bonuses. Some employees, however, fear that complaining to management about defective equipment or machinery may at best be ineffective and at worst lead to reprisals.

2. **Modify or replace the material.** Safety hazards can be associated with materials, as well as machinery. Handling toxic substances or explosive chemicals can be eliminated if companies replace the material with safe or less dangerous ones. In some cases, this is difficult to do because a material is virtually unique, like asbestos. In other cases, handling hazardous materials is inextricably part of the job—as with medical experiments or fire fighting—and therefore cannot be avoided. In such cases, other methods for limiting the dangers can be applied, including enclosure of the materials and ventilation.

3. **Provide and maintain safe working conditions.** Employers can provide a number of environmental features at the workplace that will minimize the opportunity for accidents in the use of machinery or hazardous materials. Such features include:

- proper positioning of stationary equipment and materials—for example, separating flammable substances from sources of flame
- posting appropriate warning signs regarding dangers and limiting access to dangerous areas to authorized personnel
- providing safe storage areas for hazardous equipment and materials to prevent unauthorized people from using them or prevent anyone from using them when they need maintenance or repair
- providing handrails, guardrails, and other surface-area safety features to help prevent falls and slips

4. **Change the procedures.** The sequence or number of tasks associated with a job can be altered in such a way that the danger is reduced. For example, in the case of the police officer driving at high speed and using the radio at the same time, the radio can be linked to the engine in a manner that prevents radio transmission at high speeds. However, most changes in procedures entail drawbacks. In the speeding police car example there may be situations in which it is more dangerous for an officer not to be able to place a call (for example, for help) while traveling at high speed than to place one. Typically, however, the major drawbacks of altering work procedures involve those of cost and time. For instance, introducing a maintenance check or cleaning procedure into an assembly-line operation will involve extra pay for maintenance personnel and may require a reduced pace or periodic halts in the production process.

Another safety alternative that is sometimes available is to reduce the number of times a hazardous operation is performed, rather than change the procedure itself. Use of larger vehicles or shipping containers might reduce the frequency with which a dangerous substance must be transported from one part of a plant to another.

Procedures, to the extent possible, should conform to the capabilities and limitations of the human mind and body and not force workers to adapt to the procedure's requirements. Work tasks should not require unrealistic degrees of concentration or difficult-to-execute body movements. Counting tasks should go from smaller to larger numbers, and fingering movements should involve using digits in activities for which they are well suited.

5. **Follow good housekeeping practices.** Poor housekeeping is a major contributing factor to accidents in a number of workplaces. Hazards are often unnecessarily created when containers are left open, leftover hazardous materials are not swept up, vacuumed, or otherwise disposed of, and equipment and materials are not put away and stored after use. Not only can workers slip on, trip over, or bump into them, but also materials and refuse that are not properly removed or stored can lead to explosions, fires, or leakage of toxic substances. For example, one of the principal ways that grain elevator operators can control the occurrence of fires and explosions is to control the amount of accumulated grain dust. This can be done not only with an efficient ventilation and dust removal system but also through dust disposal by regular sweeping and vacuuming.

Good housekeeping is the joint responsibility of management, supervisors, and employees. The company must take responsibility for requiring or at least recommending good housekeeping practices; supervisors need to enforce the company's safety rules and urge workers to adhere to them; and employees themselves, with or without admonitions from management, are responsible within the limits of their knowledge for following good housekeeping practices.

6. **Exercise care.** Employees can reduce the risk of accidents by being careful in their work. Care includes not only how they operate equipment but also how they handle hazardous materials like compressed gases, flammable and combustible liquids, explosives and blasting agents, and a variety of toxic substances.

Unfortunately, as has been noted earlier, several factors may conspire to reduce workers' ability and motivation to be careful on the job. Human nature has its limitations in terms of ability to concentrate on safety procedures. Sometimes, jobs require several simultaneous physical or mental operations. The ability to combine a concern for safety with actual work tasks may be limited, given the finite number of things most people can focus on or perform accurately at any given time. Company policies may also inhibit attention to safety considerations. Where production bonuses are in effect, there are powerful incentives for workers and supervisors alike to give short shrift to any safety procedures that may slow down production, whether it is shutting down machinery for needed repairs or using fingers instead of safety tongs to handle dangerous substances or perform dangerous operations. Some employers or supervisors are also indifferent or even hostile to being told by their employees that the production schedule needs to be slowed down or halted in the interests of worker safety.

There are also a number of nonrational reasons employed people may have for avoiding safety precautions on the job. Workers can be so hostile to authority that they refuse to follow safe work procedures just to spite management or because they mistrust their company's motives in imposing or recommending safety measures. Other workers feel that paying attention to the dangers of their job is a sign of weakness, which they are reluctant to admit to themselves or to have their peers witness. Frequently, exercising caution on the job requires extra mental or physical effort or discomfort, which some workers are unwilling to exert or tolerate—just as most of us are unwilling to use safety belts when we drive. For example, workers who handle radioactive substances must be prepared to change plastic examination gloves every time they stop working with radioactive material—even to get a cup of coffee.

In some jobs, employees are uncomfortable having constantly to confront the degree of danger their work entails, and therefore they neglect safety precautions as a way of denying the hazards and retaining some peace of mind.

Finally, some workers fail to take adequate safety measures because they fail to understand the importance of doing so—they haven't been properly informed of the risks of their jobs—or because they haven't been taught or trained in what steps to take to minimize these risks. This consideration leads to the next preventive measure for reducing and eliminating job accidents: employee training and education.

7. **Provide worker training and education.** Unfortunately, several studies have indicated that employed people are poorly trained or not trained at all in how to exercise maximum care on the job. Often, employees are not told completely or even at all about the hazards their work entails. Clearly, one of the most essential avenues to preventing injuries on the job is to enable workers to understand thoroughly the dangers of their work and to inform and train them in the methods by which to eliminate or reduce those hazards. Some companies, however, feel that explaining all the risks involved will only serve to frighten employees and make them unnecessarily anxious. Management may also feel that the costs involved in extensive training are prohibitive. Occasionally, for legal reasons, companies do not wish to admit

to the danger of their workplace. Some supervisors also feel that safety education is a waste of effort because too many workers ignore the safety procedures that management does recommend. For example, there are workers who fail to use the provided safety equipment to protect themselves against workplace hazards.

8. **Provide and use safety equipment.** The last resort to preventing accidents has just been alluded to—the use of safety equipment. This approach is usually implemented only when other alternatives have failed to minimize a danger on the job because this preventive measure does not seek to eliminate the hazard from the source; rather, it accepts the danger as unavoidable and merely tries to deflect it.

This approach, in addition, has the added disadvantage of depending on a number of unpredictable conditions for its success, including: (a) the reliability and appropriateness of the equipment being used; (b) the willingness of management to purchase or make available effective equipment in adequate numbers; (c) the ability of companies to maintain the devices in effective operating condition and to train workers thoroughly in their proper use; and (d) the motivation of workers to use the equipment and, if they do so, to use it properly.

Some of the problems associated with the use of safety equipment are discussed below. For example, a surprising number of hard hats fail to provide protection against even relatively light falling objects; some protective devices in current use are out of date; many respirators simply cannot be worn during temperature extremes; and certain equipment isn't designed or able to offer protection against new hazards. The demand-type breathing apparatus that fire fighters often use, for instance, allows the user to breathe smoke and fumes from any of the 30,000 plastics and countless other chemicals that modern technology has introduced into home furnishings, carpeting, and wall coverings. In other situations where safety equipment would be helpful, companies may not provide the most effective protective devices and clothing available for their workers or may do so but charge workers for cleaning them, thereby reducing employees' incentive to use them. Frequently, employees are trained poorly or not at all in how to wear and maintain protective equipment. Finally, some workers, for a variety of reasons identified earlier, fail to use protective devices they are given or use them incorrectly in a manner that thwarts their purpose. Some workers refuse to wear respirators, hard hats, or safety glasses. Others take their contaminated clothing home for cleaning and expose their families to dangerous chemicals from the workplace.

In short, on the one hand, relying on safety equipment to ensure worker safety involves too many contingencies to be considered a first-line defense against workplace injuries. On the other hand, despite all these drawbacks, protective devices offer the best or only protection available in many work situations.

Often, of course, two or more of the above eight safety measures are implemented in conjunction. For example, workers often need to be trained in the use of protective equipment; instituting engineering controls may not eliminate a hazard but only reduce it, in which case care must still be exercised by workers to protect their safety; and changing work procedures to ensure added safety may not be possible without modifying the equipment used in the activity in question. In general, multiple protective measures will guarantee worker safety better than will reliance on a single approach. However, the most effective protection will always lie in (a) management's willingness and ability to provide a safe working environment and in (b) employees' motivation and capacity to exercise constant and adequate care in how they perform their work.

THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
AND
THE OCCUPATIONAL SAFETY AND HEALTH ACT

OSHA'S PURPOSE

Under the provisions of the Occupational Safety and Health Act of 1970, the Occupational Safety and Health Administration (OSHA) was created within the U.S. Department of Labor to:

- encourage employers and employees to reduce hazards in the workplace and to implement new or improve existing safety and health programs;
- establish reporting and recordkeeping procedures to monitor job-related injuries and illnesses;
- develop mandatory job safety and health standards and enforce them effectively; and
- encourage the states to assume the fullest responsibility for establishing and administering their own occupational safety and health programs, which must be "at least as effective as" the federal program.

THE ACT'S COVERAGE

In general, coverage of the Act extends to all employers and their employees in the 50 states, the District of Columbia, Puerto Rico, the Canal Zone, and all other territories under federal government jurisdiction.

Under the Act's coverage come employers and employees in such varied fields as construction, longshoring, agriculture, law and medicine, charity and disaster relief, organized labor, and private education. Groups and businesses not covered under the Act include: self-employed persons; family-owned and operated farms; workplaces already protected by other federal agencies under other federal statutes (e.g., mines); and federal, state, and local government employees.

STANDARDS

The general duty clause of the Act states that each employer "shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

In carrying out its duties under the Act, OSHA is responsible for establishing legally enforceable standards. OSHA standards may require conditions, or the adoption or use of one or more practices, means, methods, or processes reasonably necessary or appropriate to protect workers on the job. Even in cases where OSHA has not promulgated specific standards, employers are responsible for following the intent of the Act's general duty clause.

Free single copies of each standard may be obtained from the OSHA office nearest you (see addresses at the end of this guide).

The *Federal Register,* available in many libraries, is one of the best sources of information on standards, since all OSHA standards are published in the *Federal Register* when they are adopted.

STANDARDS DEVELOPMENT

OSHA can begin standards-setting procedures on its own initiative or on petitions from other parties, including state and local governments, employer or labor representatives, or any other interested person. If OSHA determines that a specific standard is needed, any of several advisory committees may be called upon to develop specific recommendations.

Recommendations for standards also may come from the National Institute for Occupational Safety and Health (NIOSH), established by the Act as an agency of the Department of Health, Education, and Welfare.

NIOSH conducts research on various safety and health problems, including the psychological factors involved; and it provides technical assistance to OSHA. Especially important is NIOSH's investigation of toxic substances and its development of criteria for the use of such substances in the workplace.

While conducting its research, NIOSH may make workplace inspections (see sample Health Hazard Evaluation Request form following this section), gather testimony from employers and employees, and require that employers measure and report employee exposure to potentially hazardous materials. NIOSH also may require employers to provide medical examinations and tests to determine the incidence of occupation illness among employees.

The material in this section is adapted from *All about OSHA*, U.S. Department of Labor, April, 1976.

Standards Adoption

Once OSHA has developed plans to propose, amend, or delete a standard, it publishes these intentions in the *Federal Register* as a "Notice of Proposed Rulemaking," or often as an earlier "Advance Notice of Proposed Rulemaking." The notice provides a specific time (at least 30 days from the date of publication, occasionally 60 days or more) for the public to respond to it.

Emergency Temporary Standards

Under certain conditions, OSHA is authorized to set emergency temporary standards that take effect immediately. OSHA must first determine that workers are in grave danger due to exposure to toxic substances or new hazards. Then, OSHA publishes an emergency temporary standard in the *Federal Register,* where it also serves as a proposed permanent standard. It is then subject to the usual procedure for adopting or rejecting a permanent standard, except that a final ruling must be made within 6 months.

Appealing Standards

If any affected party, employer, or employee believes that a final standard or rule is too burdensome or is inadequate, an appeal may be made to the U.S. Circuit Court of Appeals for the circuit in which the objector lives or has his or her principal place of business. Employers may also apply to OSHA to be excused from a standard or regulation (called a "variance") if they lack the means to readily comply with it, or if they can prove that their facilities or methods of operation provide employee protection that is "at least as effective as" that required by OSHA.

WORKPLACE INSPECTION

Authority to Inspect

In order to enforce its standards and regulations, OSHA is authorized under the Act to conduct workplace inspections. Every establishment covered by the Act is subject to inspection by OSHA compliance safety and health officers (inspectors).

With rare exceptions, inspections are conducted without advance notice. Alerting an employer in advance of an OSHA inspection can bring a fine of up to $1,000 and/or a 6-month jail term. (In 1978, however, the Supreme Court ruled that employers may require OSHA inspectors to secure a search warrant before entering the plant.)

Inspection Priorities

Obviously, not all 5 million workplaces covered by the Act can be inspected immediately. The worst situations need attention first. Therefore, OSHA has established a system of inspection priorities.

1. Imminent danger situations are given top priority. An imminent danger is any condition where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm immediately or before the danger can be eliminated through normal enforcement procedures. Health hazards are included among imminent danger situations, for they also may constitute a serious threat to life.

Employees should inform the supervisor or employer immediately if they detect or even suspect an imminent danger situation in the workplace. If the employer takes no positive action to eliminate the danger, an employee or the authorized employee representative may notify the nearest OSHA office and request an inspection. The request should identify the workplace location, detail the hazard or condition, and include the employee's name, address, and telephone number. Although the employer has the right to see a copy of the complaint if an inspection results, the name of the employee will be withheld if the employee so requests. A blank OSHA inspection request form follows this section of chapter 3.

The OSHA area director reviews the information presented and immediately determines whether there is a reasonable basis for the employee's allegation. If it is decided the case has merit, the area director will assign a compliance officer to conduct an immediate inspection of the workplace.

Upon inspection, if an imminent danger situation is found, the compliance officer will ask the employer to voluntarily eliminate or reduce ("abate") the hazard and to remove endangered employees from the area. Should the employer fail to do this, OSHA will apply to the nearest Federal District Court for appropriate legal action to correct the situation. However, walking off the job because of potentially unsafe workplace conditions is not an employee right. To do so may result in disciplinary action by the employer.

2. Second priority is given to investigation of catastrophes, fatalities, and accidents resulting in hospitalization of five or more employees. Such situations must be reported to OSHA within 48 hours. Investigations are made to determine if OSHA standards were violated and to learn how to avoid recurrence of similar accidents.

[illegible] Third priority is given to valid employee complaints of alleged violation of standards or of unsafe or unhealthful working conditions.

4. Next in priority are periodic special emphasis programs of inspection aimed at specific high-hazard industries, occupations, or health substances.

5. Random inspections are also conducted in

establishments of all sizes and types, in all parts of the nation. Finally, establishments cited for alleged serious violations are supposed to be reinspected to determine whether hazards have been corrected.

Inspection Process

Opening conference. The compliance officer begins by explaining to the employer the purpose of the visit, the scope of the inspection, and the standards that apply.

The employer is asked to select an employer representative to accompany the compliance during the inspection tour.

An authorized employee representative also is usually given the opportunity to accompany the compliance officer during the inspection. The employee must be paid his or her normal wage during the inspection.

Inspection tour. After the opening conference, the compliance officer and the accompanying representatives then proceed through the establishment, inspecting work areas for compliance with OSHA standards.

The route and duration of the inspection are determined by the compliance officer. The compliance officer observes conditions and consults with employees and may take photos (for record purposes), make instrument readings, and examine records to the extent considered appropriate.

Some apparent violations detected by the compliance officer can be corrected immediately.

The inspection tour may cover part or all of an establishment, even if the inspection resulted from a specific complaint, fatality, or catastrophe.

Closing Conference. After the inspection tour, a closing conference is held between the compliance officer and the employer or the employer representative. The compliance officer discusses with the employer what has been found on the inspection and advises the employer of all apparent violations for which a citation may be issued or recommended.

During the closing conference, the employer may wish to produce records to show compliance efforts and to provide information that can help OSHA determine how much time may be needed to abate (correct) an alleged violation.

CITATIONS AND PENALTIES

Citations

After the compliance officer reports to his or her OSHA office, the area director determines what citations, if any, will be issued, and what penalties, if any, will be proposed.

To assure that protection is offered to employees in the shortest possible time, the compliance officer has authority to issue citations at the worksite, following the closing conference. To do so, the compliance officer must first discuss each apparent violation with his or her area director by telephone and receive approval to issue citations. In addition, the compliance officer may not propose penalties.

Penalties

There are several types of violations that may be cited, ranging from nonserious to serious to imminent danger. There are also a number of different penalties that may be proposed for these violations, including warnings and fines of up to $10,000 for each willful or repeated violation by an employer.

If an employer decides to contest a citation, the time set for correcting it, or the proposed penalty, he or she has 15 working days from the time the the citation and proposed penalty are received in which to notify the OSHA area director. The OSHA area director forwards the case to the independent Occupational Safety and Health Review Commission, which assigns the case to an administrative law judge. Once the administrative law judge has ruled, any party to the case may request a further review by the Review Commission itself.

OSHA-APPROVED STATE PLANS

The Act requires OSHA to encourage the states to develop and operate their own job safety and health programs, which must be "at least as effective as" the federal program. Once a state plan is approved, OSHA funds 50 percent of its operating costs.

To gain OSHA approval, a state must demonstrate that within three years it will meet all the steps necessary to become at least as effective as the federal program, by providing adequate legislation, administration, standards-setting, enforcement and appeals procedures, and a sufficient number of competent enforcement personnel. During this interim period, OSHA is required to monitor the state program and retains its own authority to enforce federal standards in the state.

Once the state has operated its program at a fully effective level for at least one year, final approval may be granted. At that time, OSHA's enforcement activity will cease and the state has jurisdiction.

EMPLOYER RESPONSIBILITIES AND RIGHTS

Employers have certain responsibilities and rights under the Occupational Safety and Health Act of 1970. The checklists that follow review many of these.

Responsibilities

Employers must:

- provide a hazard-free workplace and comply with the occupational safety and health standards, rules, and regulations issued under the Act;
- make copies of OSHA standards available to employees for review upon request;
- make sure employees have and use safe tools and equipment (including personal protective equipment) and that such equipment is properly maintained;
- provide medical examinations when required by OSHA standards;
- keep OSHA-required records of work-related injuries and illnesses, and post the annual summary during the entire month of February each year (this applies to employers with eight or more employees);
- post, at a prominent location within the workplace, the OSHA poster informing employees of their rights and responsibilities; and
- post OSHA citations of apparent violations of standards or of the general duty clause at or near the worksite involved.

Rights

Employers have the right to:

- seek advice and off-site consultation as needed by writing, calling, or visiting the nearest OSHA office;
- be advised by the compliance officer of the reason for an inspection and have an opening and closing conference with the compliance officer;
- apply to OSHA for a temporary exception ("variance") from a standard if unable to comply because of the unavailability of materials, equipment, or personnel to make necessary changes within the required length of time;
- avail themselves, if they are small business employers, of long-term loans through the Small Business Administration (SBA) to help bring their establishments into compliance, either before or after an OSHA inspection; and
- be assured of the confidentiality of any trade secrets observed by an OSHA compliance officer during an inspection.

EMPLOYEE RESPONSIBILITIES AND RIGHTS

Although OSHA does not cite employees for violations of their responsibilities, each employee "shall comply with all occupational safety and health standards and all rules, regulations, and orders issued under the Act" that apply to his or her own actions and conduct on the job.

Responsibilities

Employees should:

- follow all employer safety and health rules and regulations, and wear or use prescribed protective equipment while engaged in work;
- report hazardous conditions to the supervisor; and
- report any job-related injury or illness to the employer, and seek treatment promptly.

Rights

Employees have the right to:

- review copies of any of the OSHA standards, rules, regulations, and requirements that the employer should have available at the workplace;
- request information from employers on safety and health hazards in the area, on precautions that may be taken, and on procedures to be followed if an employee is involved in an accident or exposed to toxic substances;
- request (in writing) the OSHA area director to conduct an inspection if they believe hazardous conditions or violation of standards exist in their workplace;
- have their name withheld from their employer, upon request to OSHA, if they file a written and signed complaint;
- file a complaint to OSHA within 30 days if they believe they have been discriminated against, discharged, demoted, or otherwise penalized because of asserting an employee right under the Act, and be notified by OSHA of its determination within 90 days of filing;
- have the authorized employee representative where they work accompany the OSHA compliance officer during the inspection tour;
- observe any monitoring or measuring of hazardous materials and have the right of access to records on those materials;
- request a closing discussion with the compliance officer following an inspection; and
- submit a written request to the National Institute for Occupational Safety and Health (NIOSH) for information on whether any substance in their workplace has potential toxic effects in the concentrations being used, and have their name withheld from their employer if they so request (see sample request form that follows).

Occupational Safety and Health Administration
Complaint

U.S. Department of Labor

This form is provided for the assistance of any complainant and is not intended to constitute the exclusive means by which a complaint may be registered with the U.S. Department of Labor.

Form Approved
O.M.B. No. 044R1449

Sec. 8(f) (1) of the Williams-Steiger Occupational Safety and Health Act, 29 U.S.C. 651, provides as follows: Any employees or representative of employees who believe that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may request an inspection by giving notice to the Secretary or his authorized representative of such violation or danger. Any such notice shall be reduced to writing, shall set forth with reasonable particularity the grounds for the notice, and shall be signed by the employees or representative of employees, and a copy shall be provided the employer or his agent no later than at the time of inspection, except that, upon request of the person giving such notice, his name and the names of individual employees referred to therein shall not appear in such copy or on any record published, released, or made available pursuant to subsection (g) of this section. If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, he shall make a special inspection in accordance with the provisions of this section as soon as practicable, to determine if such violation or danger exists. If the Secretary determines there are no reasonable grounds to believe that a violation or danger exists he shall notify the employees or representative of the employees in writing of such determination.

NOTE: Section 11 (c) of the Act provides explicit protection for employees exercising their rights, including making safety and health complaints.

For Official Use Only

Area	Date Received	Time
Region	Received By	Formal ☐ Non Formal ☐

The undersigned *(check one)*

☐ Employee ☐ Representative of Employees ☐ Other *(specify)*

believes that a violation at the following place of employment of an occupational safety or health standard exists which is a job safety or health hazard.

Employer's Name

Employer's Address *(Street)* *(City)*

(State) *(Zip Code)* Telephone

1. Kind of business

2. Specify the particular building or worksite where the alleged violation is located, including address.

3. Specify the name and phone number of employer's agent(s) in charge.

4. Describe briefly the hazard which exists there including the approximate number of employees exposed to or threatened by such hazard.

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CONTINUED ON REVERSE SIDE

5. (a) To your knowledge is this condition being considered by any other Government agency, or has it been considered by any other Government agency?

Yes ☐ No ☐

5. (b) If yes, and you know, which Government agency?

6. Has this condition been brought to the attention of the employer?

Yes ☐ No ☐ Don't know ☐

7. Please indicate your desire:

☐ I *do not* want my name revealed to the employer. ☐ My name *may be* revealed to the employer.

NOTE: It is unlawful to make any false statement, representation or certification in any document filed pursuant to the Occupational Safety and Health Act of 1970. Violations can be punished by a fine of not more than $10,000, or by imprisonment of not more than six months, or by both. (Section 17(g))

Signature ______ Date ______

Typed or Printed Name ______

Address *(Street)* ______ *(City)* ______

(State) ______ *(Zip Code)* ______ Telephone ______

If you are an authorized representative of employees affected by this complaint, please state the name of your organization and your title ______

GPO 923-242

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

REQUEST FOR HEALTH HAZARD EVALUATION

This form is provided to assist in registering a request for a health hazard evaluation with the U.S. Department of Health, Education, and Welfare as provided in Section 20(a)(6) of the Occupational Safety and Health Act of 1970 and 42 CFR Part 85. (See Statement of Authority on Reverse Side.) *The provisions of this section provide for evaluation of health hazards resulting from exposure to chemical substances only: Physical agents (noise, heat, etc.) and safety are not covered by this section.*

Name of Establishment Where Substance(s) Exists ______________________

Company Address
Street ______________________ Telephone __________
City ______________________ State __________ Zip Code __________

1. What Product or Service does the Establishment Produce? ______________________

2. Specify the particular building or worksite where the substance(s) is located, including address.

3. Specify the name, title, and phone number of the employer's agent(s) in charge. __________

4. Describe briefly the substance(s) which exists by completing the following:

Identification of Toxic Substance(s) ______________________

Trade Name(s) (If Applicable) __________ Chemical Name(s) __________

Manufacturer(s) ______________________

Does the material have a warning label? _____ Yes _____ No. If yes; attach copy of label or a copy of the information contained on the label.

Physical Form of Substance(s): ☐ Dust ☐ Gas ☐ Liquid ☐ Mist ☐ Other

How are you exposed? ☐ Breathing ☐ Swallowing ☐ Skin Contact

Number of People Exposed __________ Length of Exposure (Hours/Day) __________

Occupations of Exposed Employees ______________________

5. Using the space below describe further the nature of the conditions or circumstances which prompted this request and other relevant aspects which you may consider important, such as the nature of the illness or symptoms of exposure, the concern for the potentially toxic effects of a new chemical substance introduced into the workplace, etc. __________

CDC/NIOSH 2.86 (Rev. 3-77)
(Former / NIOSH-4)

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6. (a) To your knowledge has this substance been considered previously by any Government agency? ______ (b) If so, give the name and address of each. ____________

____

____

(c) and, the approximate date it was so considered. ____________

7. (a) Is a similar request currently being filed with or under investigation by any other Government (State or Federal) agency? ______ (b) If so, give the name and address of each ____

____

8. Requester — (*Employees of State, Local or Federal Agencies are not eligible.*)
The undersigned Requester believes that a substance (or substances) normally found in the place of employment may have potentially toxic effects in the concentrations used or found.

Signature ______________________ Date ____________

Typed or Printed Name ______________________ Phone: Home—____________

Address { Street ______________________ Business—____________

City ____________ State ____________ Zip Code ____________

Check One:

☐ I am an Employer Representative

☐ I am an Authorized Representative of, or an officer of the organization representing the employees for purposes of collective bargaining. State the name and address of your organization. ______________________

____

☐ I am an Authorized Representative of two or more employees in the workplace where the substance is normally found. Add signatures of authorizing employees below:

Name ______________________ Phone ____________

Name ______________________ Phone ____________

☐ I am one of three or less employees in the workplace where the substance is normally found.

Please indicate your desire: ☐ I do not want my name revealed to the employer.

☐ My name may be revealed to the employer.

Authority:
Section 20(a)(6) of the Occupational Safety and Health Act, (29 U. S. C. 669(a)(6)) provides as follows: The Secretary of Health, Education, and Welfare shall . . . determine following a written request by any employer or authorized representative of employees, specifying with reasonable particularity the grounds on which the request is made, whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found; and shall submit such determination both to employers and affected employees as soon as possible. If the Secretary of Health, Education, and Welfare determines that any substance is potentially toxic at the concentrations in which it is used or found in a place of employment, and such substance is not covered by an occupational safety or health standard promulgated under section 6, the Secretary of Health, Education, and Welfare shall immediately submit such determination to the Secretary of Labor, together with all pertinent criteria.

For further information:
Telephone: AC 513-684-2176

Send the completed form to:

National Institute for Occupational Safety and Health
Hazard Evaluation and Technical Assistance Branch
4676 Columbia Parkway
Cincinnati, Ohio 45226

* U.S. GOVERNMENT PRINTING OFFICE: [illegible]-657-012/336

ESTABLISHING LIAISON WITH THE COMMUNITY

Since many of the activities in this guide involve field trips to workplaces and interviews with members of the community, this resource is designed to help you and your students to identify and enlist support from appropriate individuals, groups, businesses, and agencies in your local community.

Identifying Places and People to Contact

When selecting sites to visit, your first step should be to learn whether your town, city, or school district is one of the many that provides a list of companies and agencies encouraging field trips. You may be able to obtain this information from your State Department of Education, local school superintendent of schools, state or school audiovisual department, or school career education coordinator or instructor.

There are several other resources you can contact for help in identifying companies and agencies that encourage field trips or interviews. The best persons to help you make contacts, in addition to those mentioned above, are the following:

- school administrators who have contacts in the community
- the school guidance department
- students who hold part-time jobs or have older brothers and sisters who hold part-time jobs
- students' parents who work

You can also thumb through the advertisements in last year's school yearbook for companies that, having already made contact with the school, may be receptive to your requests. Failing all else, you can seek information on sites to visit from the following sources: the public library, the Yellow Pages of the telephone book, from local labor unions, and from business associations and fraternal clubs, such as the Rotary Club, Lions, Masons, Elks, Moose, Chamber of Commerce, and Better Business Bureau.

Having identified the place you want to visit, your next task is to decide whom to telephone or visit at the site to arrange for the field trip or interviews. When possible, utilize the same contacts listed above to learn whom you should call or visit. If you must, take "potluck" by asking the company switchboard for one of three departments: personnel office, information office, or public relations department.

Enlisting the Interest of Target Businesses and Agencies

Once you or your students have identified people and places to visit or interview, (1) send a letter indicating you plan to call for an appointment and explaining why you want to meet, (2) telephone two or three days later to set up a time for an appointment, and (3) visit the responsible official. In many instances, however, it may be possible to arrange your field trips or interviews over the phone, with no need to pay a personal advance visit to the firm or agency at all.

Before you make your initial call, have at your fingertips the answers to questions the business or agency contact may ask you. Firms or agencies may want to know the following from you before they agree to host a field trip or answer interviewer questions:

- How old are the students?
- How many will be coming and how long will they want to stay?
- How many adult chaperones, if any, will there be?
- Will there be any discipline problems?
- What days and hours can they come?
- Do the students' parents know about and approve of the trip?
- What do the students hope to learn and see?
- With whom do the students want to talk?
- Will the students bring cameras or tape recorders?
- How will the students be getting to the site?

In addition, before you call or visit, have ready the questions to which *you* need the answers, such as the following:

- How many students can the firm or agency accommodate at any one time?
- Can more than one (small) group visit the site on different days? At the same time?
- What legal problems, if any, are there in bringing students into the site? (See the discussion of this issue below.)
- Should the students wear any special type of clothing (for example, old clothing to visit a steel plant)?
- Can the students ask questions of some of the employees? In particular, can they talk to ________________?
- Can the students take notes during their tour or interviews or bring tape recorders or cameras?
- How much time will be available for the tour or interviews?
- Is there a translator or someone who speaks Spanish?
- Will handicapped students have difficulty getting around?

Logistics of Field Trips and Interviews

While you can certainly participate in chauffeuring students who do not have driver's licenses and available cars to businesses and agencies for their interviews and tours, unless you have a school bus at your disposal, a good deal of free time, and considerable patience, you are not going to be able to take your students on more than one or two trips a semester. Your major resources for transportation will therefore be public transportation for local trips and parents for those requiring use of a car. Taxis may be another option where students can afford to split the costs.

Often, if you tell the class you need drivers or chaperones, students themselves will offer the "services" of their parents to take them on a trip. You can also ask your students for parent "volunteers" and then telephone these proffered parents to "recruit" their services.

Legal Issues Involved in Field Trips

Generally, industries and agencies have their own insurance that protects them if a visitor is injured while on their property. However, this does not mean that companies and agencies particularly want to risk such a suit, nor that your students and their parents are particularly anxious to initiate one, should an accident occur. Therefore, you will want to inquire of your school superintendent or principal what legal coverage, if any, you and your students have in case you, they, or any chaperoning parents should be injured during a field trip. For example, in many communities, students can sue *you* if you are driving them to a site and get into an accident.

The most effective way to protect yourself is to secure for each and every field trip a signed letter of approval from a parent or legal guardian giving his or her approval for the trip. The letter must indicate that the parent or guardian is aware of the nature, purpose, date, and destination of the trip. Give copies of the unsigned form letter to your students, and tell them they can't go on the trip unless you have a signed copy returned to you before the trip. You may also want to consider sending the letters to their homes.

Three Key Resources

When you set up field trips and interviews, you have four key resources you can call upon for assistance: students, parents, school administrators and guidance counselors, and career and occupational education instructors.

Students. When possible, let your students do as much, if not all, of the work in arranging for field trips and interviews. Making contacts with businesses and agencies will in itself be a learning experience for them. They may find it helpful to read this section of the guide on Establishing Liaison with the Community. They may not be as effective as you in arranging field trips and interviews, because some agencies and businesses may feel less compunction about turning down students' requests than in turning down a teacher's. However, even if students fail in their attempts, you can pick up where they left off and set up the tour or interviews.

Parents. The utility of using parents to help transport and chaperone students has already been mentioned, as well as the importance of securing their permission for any field trips their children plan to take and the likelihood that they can help identify and even contact businesses and agencies where they or their relatives are employed. You can also enlist parents' support and assistance by formally writing them early in your unit to outline what you plan to teach, how you expect to teach it, and why you will be offering that kind of course. Invite them in this letter to phone or visit you at school for further information. Most parents will appreciate being spontaneously informed and consulted on their children's education even if they never follow up on the invitation to communicate with you. You can also invite parents to observe your class and to share with students their own occupational safety and health experiences (although you should be sensitive to the feelings of students who may be embarrassed in front of the other students by having one of their parents come to class).

School administrators and guidance personnel. As already indicated, school administrators and guidance counselors can also be of assistance with the contacts they have with firms and agencies in the local community. In addition, your effort to enlist their support and assistance will be simplified if early in your unit you inform them, like the parents, about your plans. This will also provide them with the necessary background information about your plans to enable them to respond intelligently to any parents or other members of the community who may inquire about what you are "up to" in promoting field trips and interviews in the local community.

Career and occupational education instructors and coordinators. If your school has a career education or occupational education course, take full advantage of the community contacts or information about the community the faculty teaching these courses may have. Even better, consult with them before developing your unit on occupational safety and solicit their suggestions for improving your curriculum plans.

The following checklist may be helpful to you as you arrange for field trips and interviews. You can also duplicate copies for your students each time time they arrange their own field trips or interviews.

Checklist for Establishing Liaison with the Community

______ I. **Identify places and people to contact**
______ A. Identify site by using:
______ 1. Published list of interested agencies and firms
______ 2. Personal contacts of:
______ a. school administrators
______ b. students
______ c. students' parents
______ d. school guidance department
______ e. career or occupational education department
______ 3. Advertisements in school yearbook
______ 4. Yellow Pages
______ 5. Business associations
______ B. Identify whom to telephone and write at each site
______ II. **Enlist interest of target businesses and agencies**
______ A. Send advance letter
______ B. Plan in advance
______ 1. Have answers to firms' or agencies' questions ready
______ 2. Have your questions ready
______ C. Telephone
______ D. Pay advance visit (if necessary)
______ III. **Plan logistics**
______ A. Transportation
______ B. Chaperoning
______ IV. **Consider legal issues**
______ A. Question site
______ B. Talk with school administration
______ C. Secure letter of permission from parents
______ V. **Utilize fully all resources**
______ A. Students
______ B. Parents
______ C. School administrators and guidance counselors
______ D. Career or occupational education department

RESOURCES

Listed below are resources available to you and to your students (depending on their reading and comprehension level) for learning more about occupational safety and health.

BOOKS

Titles of books that are particularly useful for instructors who wish to gain a background in occupational safety and health sufficient to teach the topic are followed by an asterisk.

- *Work Is Dangerous to Your Health,** by Jeanne Stellman, Ph.D., and Susan Daum, M.D. Vintage Books, New York, 1973. $1.95. Paperbound. An easy-to-read account of health hazards in the workplace and what workers can do about them.
- *Bitter Wages,** by Joseph A. Page and Mary-Win O'Brien. Grossman, New York, 1973. $2.50. Paperbound. Ralph Nader's Study Group Report on disease and injury on the job. Discusses nature of job safety and health problems and provides analysis into the political issues they have spawned.
- *Crisis in the Workplace: Occupational Disease and Injury,** by Nicholas A. Ashford. MIT Press, Cambridge, Massachusetts, 1976. $11.50. Clothbound. Comprehensive Report to the Ford Foundation, which describes the nature of job safety and health problems in America and the legal, social, and political issues surrounding efforts to solve them.
- *Women's Work, Women's Health: Myths and Realities,** by Jeanne Mager Stellman. Pantheon, New York, 1977. $3.95. Paperbound. Thorough discussion of both the potential effects of workplace hazards on women workers and the social, political, and legal issues involved in making the workplace safe for women and men.
- *Working for Your Life: A Woman's Guide to Job Health Hazards* by Andrea Hrico and Melanie Brunt. Labor Occupational Health Program and Public Citizen's Health Research Group, Berkeley, California, 1976. $5.00. Paperbound. Description of how jobs can affect the health of women workers, hazards on jobs where large numbers of women work, and ways to recognize hazards and make changes at the workplace.
- *Cancer and the Worker.* The New York Academy of Sciences, New York, 1977. $2.00. Paperbound. Comprehensive but nontechnical discussion of not only the dangers posed by working with or near carcinogenic substances but also the political and social issues involved in preventing occupational cancer.
- *Muscle and Blood,* by Rachel Scott. Dutton, New York, 1974. $8.95. Clothbound. Journalistic account, replete with worker interviews, of the hazards and disasters in different blue collar industries.
- *Expendable Americans,* by Paul Brodeur. Viking Compass Books, New York, 1974. $3.45. Paperbound. Revealing presentation of attempts by medical, government, and industry authorities to ignore the hazards to workers of working with asbestos.
- *How to Use OSHA,** by Urban Planning Aid. Cambridge, Massachusetts, 1975. $ .75. Paperbound. Discussion of how employed people can reduce their workplace hazards by taking advantage of the Occupational Safety and Health Administration's mandate to protect them.
- *Work in America: Report of a Special Task Force to the Secretary of Health, Education, and Welfare.* MIT Press, Cambridge, Massachusetts, 1973. $3.95. Paperbound. Discussion of the nature of work in America, problems of American workers, and solutions to these problems. One chapter is devoted to occupational safety and health problems, but many other parts of the book relate to this field, as well.
- *Industrial Health* by Jack Peterson. Prentice-Hall, Englewood Cliffs, New Jersey, 1977. $21.00. Clothbound. Thorough discussion of occupational health problems. Some chapters require background in chemistry to understand.
- *The Industrial Environment: Its Evaluation and Control,* National Institute for Occupational Safety and Health. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 1973. $13.75. Clothbound. Standard textbook covering all major aspects of occupational safety and health in chapters written by experts in their respective fields. Often very technical.
- *Encyclopedia of Occupational Health and Safety,* International Labor Organization. 2 Volumes. McGraw-Hill, New York, 1972. $59.50. This is an excellent resource document for inclusion in any library of materials on occupational safety and health. Written by experts in the various fields of job safety and health.

PAMPHLETS

The following pamphlets are all available from your nearest OSHA office (see addresses in this part) or may be ordered from the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, D.C. 20210.

- *All About OSHA* (OSHA 2056), April 1976. Booklet which explains in broad terms the provisions of the Occupational Safety and Health Act of 1970 and the policies of OSHA.
- *Workers Rights Under OSHA* (OSHA 2253), Oct. 1975. Booklet explaining the rights and responsibilities of workers under the Occupational Safety and Health Act.
- *Protection for Workers in Imminent Danger* (OSHA 2205), April 1975. Booklet providing employees with an interpretation of imminent danger, with guidance in reporting such situations, and with related personal rights.
- *Handling Hazardous Materials* (OSHA 2237), Sept. 1975. Booklet on important safety precautions in handling and storing hazardous materials that are widely used throughout industry.
- *General Industry: OSHA Safety and Health Standards Digest* (OSHA 2201), June 1975. Alphabetical digest of OSHA standards for general industry in nontechnical language, covering 90 percent of the basic applicable standards.
- *The Occupational Safety and Health Act of 1970* (OSHA 2001), Dec. 1970. Full text of the Act.
- *Job Safety and Health Protection* (OSHA 2203), 1976. Official OSHA poster required by law to be prominently posted in the workplace.

A list of additional OSHA publications may be obtained by writing for *OSHA Publications & Training Materials*, Document 2019. You can also request from your nearest NIOSH office (see addresses in this part) the NIOSH Publications Catalogue, NIOSH No. 77-207. Your name can be placed on the NIOSH mailing list upon written request to NIOSH, Office of Public Information, P.O. Building, Room 536, Cincinnati, Ohio 45202.

PERIODICALS AND NEWSLETTERS

- *Job Safety and Health.* Monthly magazine put out by the Occupational Safety and Health Administration. $13.60/year. Write to Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.
- *IUD Spotlight on Health and Safety.* Bimonthly newsletter put out by the AFL-CIO. Free. Write to AFL-CIO Industrial Union Department, 815 16th Street, N.W. Washington, D.C. 20006.
- *Lifelines.* Monthly newsletter of the Oil, Chemical, and Atomic Workers Union. $2.00/year. Write to OCAW, 1636 Champa Street, Denver, Colorado 80202.
- *Occupational Health and Safety Newsletter.* Bimonthly newsletter of the United Auto Workers. $3.00/year. Write to: UAW Social Security Department, 8000 East Jefferson Avenue, Detroit, Michigan 48214.
- *Health/PAC Bulletin.* Monthly periodical put out by the Health Policy Advisory Center, frequently featuring articles on occupational safety and health. $10.00/year. Write to Health/PAC, 17 Murray Street, New York, New York 10007.

More technical or less readily available periodicals and newsletters carried by some large libraries include *Employment Safety and Health Guide, Occupational Safety and Health Reporter, Toxic Materials News, Job Health News Service, Journal of Safety Research, National Safety News,* and *Occupational Hazards. The Federal Register* publishes all new standards on occupational health. Past standards can be requested from local OSHA offices, and citizens can ask to be put on the OSHA mailing list to receive all future standards. For OSHA addresses, refer to the following section.

GOVERNMENT AGENCIES: OSHA AND NIOSH

The two most useful government agencies are the Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH).

Local Area and Regional OSHA Offices

There are local area and regional OSHA offices, as well as the national office in Washington (U.S. Department of Labor, Washington, D.C. 20210). You and your students may contact these offices by phone (listed in the telephone directory under U.S. Government, Labor Department, Occupational Safety and Health Administration), by mail, or in person. (Toll-free numbers are available in states indicated by asterisks.)

- *Alabama
  - Birmingham 35216
  - Mobile 36602
- Alaska
  - Anchorage 99501
- Arizona
  - Phoenix 85004
- Arkansas
  - Little Rock 72201
- California
  - Long Beach 90802
  - San Francisco 94102
- Colorado
  - Lakewood 80215

- Connecticut
  - Hartford 06103
- District of Columbia
  - Washington, D.C. 20210
- *Florida
  - Fort Lauderdale 33308
  - Jacksonville 32207
  - Tampa 33602
- *Georgia
  - Macon 31204
  - Savannah 31405
  - Tucker 30084
- Hawaii
  - Honolulu 96813
- Idaho
  - Boise 83706
- Illinois
  - Aurora 60542
  - Chicago 60604
  - Niles 60648
  - Peoria 61602
- *Indiana
  - Indianapolis 46204
- Iowa
  - Des Moines 50309
- *Kansas
  - Wichita 67202
- *Kentucky
  - Louisville 40202
- Louisiana
  - Baton Rouge 70806
  - New Orleans 70130
- Maryland
  - Baltimore 21201
- Massachusetts
  - Springfield 01103
  - Waltham 02154
- *Michigan
  - Detroit 48226
- *Minnesota
  - Minneapolis 55401
- Mississippi
  - Jackson 39211
- *Missouri
  - Kansas City 64108
  - St. Louis 63101
- Montana
  - Billings 59101
- *Nebraska
  - North Platte 69101
  - Omaha 68102
- Nevada
  - Carson City 89701
- New Hampshire
  - Concord 03301
- New Jersey
  - Belle Mead 08502
  - Camden 08101
  - Dover 07801
  - Hasbrouck Heights 07604
  - Newark 07102
- New Mexico
  - Albuquerque 87103
- New York
  - Albany 12207
  - Brooklyn 11201
  - Buffalo 14202
  - Flushing 11354
  - Garden City 11530
  - New York 10007
  - Rochester 14614
  - Syracuse 13210
  - White Plains 10601
- *North Carolina
  - Raleigh 27601
- North Dakota
  - Bismarck 58501
- *Ohio
  - Cincinnati 45202
  - Cleveland 44199
  - Columbus 43215
  - Toledo 43604
- Oklahoma
  - Oklahoma City 73118
  - Tulsa 74103
- Oregon
  - Portland 97205
- Pennsylvania
  - Harrisburg 17109
  - Monroeville 15146
  - Philadelphia 19106
  - Wilkes-Barre 18701
- Puerto Rico
  - Santurce 00907
- *South Carolina
  - Columbia 29204
- South Dakota
  - Sioux Falls 57102
- *Tennessee
  - Nashville 37203
- Texas
  - Austin 78701
  - Harlingen 78550
  - Houston 77004
  - Irving 75061
  - Lubbock 79401
- Utah
  - Salt Lake City 84101
- Virginia
  - Richmond 23240
- Washington
  - Bellevue 98004
- West Virginia
  - Charleston 25301
- *Wisconsin
  - Appleton 54911
  - Milwaukee 53203

Experimental toll-free numbers. In the states listed below, OSHA has established toll-free telephone service directly to its area offices.

Kansas:	
Wichita Office (entire state)	800-362-2896
Missouri:	
Kansas City Office (west. half)	800-892-2674
St. Louis Office (east. half)	800-392-7743
Nebraska:	
North Platte Office (west. half)	800-662-2948
Omaha Office (east. half)	800-642-8963

In the following additional states, OSHA has a toll-free telephone system for you to call its regional offices instead of calling area offices directly.

Alabama	800-241-8598
Florida	800-241-8598
Georgia (except Atlanta)	800-282-1048
(Atlanta dialing area only)	892-1048
Indiana	800-621-0523
Kentucky	800-241-8598
Michigan	800-621-0523
Minnesota	800-621-0523
Mississippi	800-241-8598
North Carolina	800-241-8598
Ohio	800-621-0523
South Carolina	800-241-8598
Tennessee	800-241-8598
Wisconsin	800-621-0523

Ten OSHA regional offices. If you are unable to contact your local OSHA Area Office, you may contact the appropriate OSHA Regional Office for information or assistance.

Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
JFK Federal Building
Room 1804
Government Center
Boston, MA 02203
Tel: 617-223-6712

Region II (New York, New Jersey, Puerto Rico, Virgin Islands, Canal Zone)
1 Astor Plaza
Room 3445
1515 Broadway
New York, NY 10036
Tel: 212-971-5941

Region III (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia)
Gateway Building
Suite 2100
3535 Market St.
Philadelphia, PA 19104
Tel: 215-596-1201

Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
1375 Peachtree St., N.E.
Suite 587
Atlanta, GA 30309
Tel: 404-526-3573

Region V (Illinois, Indiana, Minnesota, Michigan, Ohio, Wisconsin)
230 S. Dearborn St.
32nd Floor, Room 3263
Chicago, IL 60604
Tel: 312-353-4716

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
555 Griffin Sq.
Room 602
Dallas, TX 75202
Tel: 214-749-2477

Region VII (Iowa, Kansas, Missouri, Nebraska)
911 Walnut St.
Room 3000
Kansas City, MO 64106
Tel: 816/758-5861

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Consultant, NIOSH
DHEW Region VIII
19th and Stout Sts.
9017 Federal Building
Denver, CO 80202
Tel: 303-837-3979

Region IX (Arizona, California, Hawaii, Nevada)
Regional Consultant, NIOSH
DHEW Region IX
50 Fulton St.
San Francisco, CA 94102
Tel: 415-556-3781

Region X (Alaska, Idaho, Oregon, Washington)
Regional Consultant, NIOSH
DHEW Region X
1321 Second Ave.
Seattle, WA 98101
Tel: 206/442-0530

NIOSH LOCATIONS

Headquarters
National Institute for Occupational Safety and Health
5600 Fishers Lane, Parklawn Building
Rockville, MD 20352

Cincinnati Laboratory
National Institute for Occupational Safety and Health
U.S. Post Office & Court House
5th & Main Sts.
Cincinnati, OH 45202

Appalachian Laboratory
Appalachian Center for Occupational Safety and Health
National Institute for Occupational Safety and Health.

P.O. Box 4292
Morgantown, WV 26505

Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
Regional Consultant, NIOSH
DHEW Region I
JFK Federal Building
Government Center
Boston, MA 02203
Tel: 617-223-6668

Region II (New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Consultant, NIOSH
DHEW Region II
Federal Building
26 Federal Plaza
New York, NY 10007
Tel: 212-264-2485

Region III (Delaware, District of Columbia, Maryland, Virginia, West Virginia, Pennsylvania)
Regional Consultant, NIOSH
DHEW Region III
3535 Market St.
Philadelphia, PA 19104
Tel: 215-597-6716

Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Consultant, NIOSH
DHEW Region IV
50 Seventh St., N.E.
Atlanta, GA 30323
Tel: 404-526-5474

Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Consultant, NIOSH
DHEW Region V
300 S. Wacker Dr.
Chicago, IL 60607
Tel: 312-353-1710

Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Consultant, NIOSH
DHEW Region VI
1114 Commerce St.
Room 8-C-53
Dallas, TX 75202
Tel: 214-749-2261

Region VII (Iowa, Kansas, Missouri, Nebraska)
Regional Consultant, NIOSH
DHEW Region VII
601 E. 12th St.
Kansas City, MO 64106
Tel: 816-374-5332

Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Federal Building
Room 15010
1961 Stout St.
Denver, CO 80202
Tel: 303-837-3883

Region IX (California, Arizona, Nevada, Hawaii)
Box 36017
450 Golden Gate Ave.
San Francisco, CA 94102
Tel: 415-556-0586

Region X (Alaska, Idaho, Oregon, Washington)
Federal Office Building
Room 6048
909 First Ave.
Seattle, WA 98174
Tel: 206-442-5930

OTHER GOVERNMENT AGENCIES

In addition to OSHA and NIOSH, five other federal agencies attempt to protect the public from hazardous substances through research and regulation.

- *The Consumer Product Safety Commission* (CPSC) has the power to do research needed to regulate harmful or dangerous consumer products and substances used in those products. Write or call the Office of Communications, Consumer Education Division, 5401 Westbard Avenue, Bethesda, MD 20016. 301-492-6576.
- *The Environmental Protection Agency* (EPA) was established to coordinate federal efforts to control air and water pollution, pesticides, and drinking water quality. Write to or call 410 M St., S.W., Washington, D.C. 20604. 202-755-0890.
- *The National Cancer Institute* (NCI) sponsors most of the government's research on cancer causes and prevention.
- *The National Institute of Environmental Health Sciences* (NIEHS) identifies the chemical, physical, and biological factors in the environment that can harm people.
- *The Federal Drug Administration* (FDA) has the authority to protect people from harmful substances in food, drugs, and cosmetics.

OCCUPATIONAL HEALTH AND SAFETY GROUPS AND PROJECTS

Several local health and safety organizations circulate fact sheets and information. Below are some of these groups. For a complete listing, order *A Guide to Worker Oriented Sources in Occupational Safety and Health* for 60¢ from the Occupational Health Project in San Francisco listed below.

Occupational Health and Safety Project
Urban Planning Aid
639 Massachusetts Avenue

Cambridge, Massachusetts 02139
617/361-9220

Health/PAC
17 Murray Street
New York, New York 10017
212/267-8890

Health Research Group
2000 P Street, N.W.
Suite 708
Washington, D.C. 20036
203/872-0820

New Haven Occupational Health Project
c/o Tony Dominski
473 Elm Street
New Haven, Connecticut
203/624-4254

Pittsburgh Area Committee for Occupational Safety and Health (PACOSH)
P.O. Box 7566
Pittsburgh, Pennsylvania 15213
412/824-2698

Chicago Area Committee for Occupational Safety and Health (CACOSH)
542 South Dearborn Street
Room 508
Chicago, Illinois 60605
312/939-2104

Workers Health and Safety Project
c/o Judy Day
7184 Manchester
St. Louis, Missouri 63143
314/781-7100

Occupational Health Project
Medical Committee for Human Rights
558 Capp Street
San Francisco, California 94110
415/282-6623, 415/285-4442, 415/824-5888

Bay Area Committee for Occupational Safety and Health (BACOSH)
c/o Jack Rasmus, Secretary
594A Chetwood Street
Oakland, California 94610
415/655-4147

San Diego Committee for Occupational Safety and Health (SD/COSH)
P.O. Box 99011
San Diego, California 92100
714/459-2160

SERVICE ORGANIZATIONS AND ASSOCIATIONS

The following list suggests several service organizations and associations that publish materials on occupational safety and health.

- American Industrial Hygiene Association
  210 Haddon Avenue
  Westmont, New Jersey 08108
  Furnishes names of industrial hygienists in your area.
- American Medical Association
  Department of Occupational Health
  535 North Dearborn Street
  Chicago, Illinois 60610
  Has many pamphlets on occupational health subjects.
- American Society of Safety Engineers
  850 Busse Highway
  Park Ridge, Illinois 60068
  Promotes and develops educational programs for safety training and conducts research in safety areas.
- Human Factors Society
  P.O. Box 1369
  Santa Monica, California 90406
  Will help in the referral of human factors specialists upon request.

Also Available From AAHPERD. . .

IMPLEMENTATION OF AEROBIC EXERCISE PROGRAMS

Papers in this publication relate to the scientific basis of aerobic exercise and the health benefits of endurance exercise programs. Methods of implementation of aerobic programs in public schools, colleges/universities and in business and industry are detailed. These papers provide a basis for starting an aerobic exercise program in schools and industry. 1979

STROKES AND STROKES: AN INSTRUCTOR'S MANUAL FOR DEVELOPING SWIM PROGRAMS FOR STROKE VICTIMS

In this new AAHPERD publication Jill Heckathorn shares her personal experience and competence to demonstrate how swimming, water exercises and other aquatic activities can contribute to rehabilitation, recreation and fitness programs for individuals who have suffered strokes. Filling a void in current professional literature on the subject, this manual is designed to be of practical assistance to individuals in many different disciplines—including physical education and adapted physical education, corrective therapy, recreation and therapeutic recreation, physical therapy, occupational therapy, rehabilitation, administration, nursing, medicine and of course aquatics. Activities and approaches that are truly personalized and individualized are emphasized. Invaluable not only as an instructional manual but also for use in inservice programs and college/university courses. 1980.

YES, YOU CAN TEACH DENTAL HEALTH

A guide to help classroom teachers and health educators correlate dental health education with instruction in other K-12 subjects, including arithmetic, science, social studies, art, music, language arts, speech, drama, home economics, chemistry, and psychology. Especially appropriate when there are constraints on time and money and a formal health instruction program is lacking. With behavioral objectives, suggested content, learning activities, and suggested resources. 1976.

LEARNING ABOUT ALCOHOL A RESOURCE BOOK FOR TEACHERS

Practical information for classroom teachers, health educators, school nurses, youth workers and others who teach about alcohol. Contributions from a special committee of educators, physicians and sociologists, designed to aide the instructor in deciding what approaches to alcohol education will be most effective in relation to the realities that exist in today's classrooms. With an extensive bibliography of teaching media and sources. 1974.

HEALTH EDUCATION

A complete revision of this standard textbook for teacher preparation courses, also invaluable as an up-to-date reference and for use in in-service education of teachers and other health personnel. It explores new ways of thinking about health education, its needs and opportunities — with emphasis on the behavioral and valuing aspects of health in education and the community. Sixteen chapters cover philosophy, subject matter, and teaching methods of health education from kindergarten through college. 6th ed. 1975.

SPORTS SAFETY MONOGRAPH SERIES

A number of significant changes have occurred in sports and recreation since the publication in 1970 of the AAHPERD text and resource book SPORTS SAFETY. These changes include such things as the increased participation of girls and women in school sports, attention to equipment and facility standards, the expansion of intramural and recreational sports programs, the increased popularity of most activities (including some newer ones such as skate-boarding and snowmobiling), improved data collection systems, and the increased litigation in sports — especially those dealing with product-related accidents. These developments prompted the Alliance to revise the text through publication of a series of six monographs, all now in print

ADMINISTRATION AND SUPERVISION FOR SAFETY IN SPORTS
1977

ACCIDENT SURVEILLANCE SYSTEMS FOR SPORTS
1977

SAFETY IN TEAM SPORTS
1977

SAFETY IN INDIVIDUAL AND DUAL SPORTS
1978

SAFETY IN AQUATIC ACTIVITIES
1978

SAFETY IN OUTDOOR RECREATIONAL ACTIVITIES
1978

SPORTS SAFETY MONOGRAPHS #1-6

A single volume containing all six of the publications in the Sports Safety Monograph Series, which are listed above. Represents a savings of 50% over the combined individual monograph prices. 1978.

READINGS IN MENTAL HEALTH EDUCATION

A series of 43 articles offering educators at all levels cognitive materials and ideas for improving the mental health of young people. The articles, contributed by national authorities for 1970-75 issues of **School Health Review/Health Education,** encourage education for positive adjustment to life through values clarification and improvement of self-esteem and decision-making skills. 1976.

THE DRUG ALTERNATIVE

The basic concept of this AAHPERD publication is that the best way to counter self-destructive behavior — such as drug abuse — is to develop and reinforce self-esteem during an individual's formative years. It takes strong exception to the various approaches to drug problems which have been part of national policy up to the present time. Must reading for educators, counselors, and others who work with young people. 1974.

EVALUATION INSTRUMENTS IN HEALTH EDUCATION

An annotated bibliography of knowledge, attitude, behavior and school health program evaluation instruments for elementary, junior high, senior high, college and nonstudent groups. Contains 143 different citations, almost all of which were developed during the past fifteen years. With descriptive information about the instruments, including validity and reliability. 3rd ed., 1979.

For prices and order information, write: AAHPERD 1900 Association Drive, Reston, VA 22091.